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International Paper Reports Net Income Up

Profit of $1,285,464 for Third Quarter This Year Compares With Loss of $901,637 for Corresponding Period Last Year—Profit for First Nine Months of This Year Was $1,548,006 Compared With Loss of $2,836,047 in 1935.

Richard J. Cullen, president, in submitting the statement of consolidated profit and loss of the International Paper and Power Company and subsidiary companies (excluding the International Hydro-Electric System and its subsidiaries) for the third quarter and first nine months of 1936 together with comparative figures for the corresponding periods of 1935, says:

Operations for the third quarter resulted in a profit of $1,285,464 as compared to a loss of $901,637 in the third quarter of 1935. Net profits for the first nine months this year were $1,548,006 as compared with a loss of $2,836,047 last year.

These net profits are after charges of $385,459 for the quarter and $703,685 for the nine months ended September 30, 1936, to cover possible payment of federal tax on undistributed profits.

Write-Down Plan

The company has under consideration a plan for scrapping certain idle properties to eliminate carrying charges and thus increase profits for the future. This will involve a material write down of physical properties with a corresponding charge to surplus at the end of the year.

The amount of write-down has not yet been ascertained and, being of a non-operating nature, is not reflected in the attached operating figures for the quarter and nine months ended September 30, 1936.

Last month ground was broken at Georgetown, South Carolina, for a new kraft paper and board mill for Southern Kraft Corporation, one of International Paper and Power Company's principal subsidiaries.

The designed capacity of the new mill is somewhat larger than that of Southern Kraft's Panama City mill which, with a 625 ton daily capacity, is today the largest kraft mill in the world.

Construction of the new mill will be financed initially by a five year bank credit, with annual sinking fund provisions, now under negotiation.

Crocker Burbank Gives Wage Increase

FITCHBURG, Mass., November 16, 1936—Charles T. Crocker, president, announces that Crocker, Burbank & Co. Association, one of the largest paper manufacturing concerns in the country, with ten mills here, has declared a general wage increase to all employees, effective November 2. Mr. Crocker said that the increase was about equal to the 1933 wage reduction and is due to the increased cost of living and because the employees deserve it.

Paper Mills Increase Wages

KALAMAZOO, Mich., November 16, 1936—The Bryant Paper Company and the Kalamazoo Paper Company, have announced pay increases to their employees on an hourly basis that brings their pay levels to those of 1929.

The Kalamazoo Paper Company has distributed checks figured at the higher level which covered the period from November 1. The Bryant Paper Company put its advance into effect with the distribution of checks Monday, November 16.

The increases, it was pointed out, do not affect men whose pay is at or above the 1929 level, and it does not affect the women employees. Their pay has been at or above the mark set for the last eighteen months. Advances are not uniform due to various adjustments made in the years intervening, executives said.

Approximately 1,200 men are affected, according to W. T. Schmitt, executive vice-president of the Bryant Paper Company, and Alfred E. Curtenius, president of the Kalamazoo Paper Company, who made the announcements.

At Monroe, the Consolidated Paper Company has announced a $140,586 bonus for its 1,909 employees with one year's service, and also has declared a $1 extra dividend in addition to the usual 25 cents quarterly dividend.

Employees of the Monroe Paper Company await the end of the year to learn what their bonus will be under a plan announced last January for distribution of 10 per cent of 1936 profits among the workers. The company has operated at a profit, but no estimate of the amount has been made.

The Lee Paper Company, at Vicksburg has brought its pay levels to the 1929 standards, affecting about 250 men, Maxwell Bardeen stated, and similar action was taken by the Mac-Sim-Bar Paper Company at Otsego, according to C. E. Wilson, affecting nearly 300 men in September.

The Kalamazoo Vegetable Parchment Company and the Sutherland Paper Company, pay levels have been at or above the 1929 base, according to R. A. Hayward and L. W. Sutherland.

Canadian Provinces to Confer on Forestry

Government Representatives of Quebec and Ontario to Discuss Co-Ordination of Development Policies—Delegates of Employers and Employees of Pulp & Paper Mills Invited to Round Table Meeting Preceding Conference

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., November 16, 1936—Preparations are under way for the second conference between representatives of the Governments of Quebec and Ontario with a view to the co-ordination of the forestry development policies in both provinces. The conference will be preceded by a round-table meeting between the Quebec Government and representatives of employers and employees of this province's forests and of the pulp and paper industry.

Limit holders, jobbers, lumbermen, colonists, and members of the paper industry labor unions will be invited to participate in the meeting, when a definite policy for the stabilization of forestry work, the judicious exploitation of the province's resources in timber, fixing of fair wages, added fire protection, and general living conditions for those engaged in the forestry operations will be fixed. The conditions decided on will immediately after be taken up with the Ontario Government in an effort to have the sister province adopt the same policies. Premier Duplessis of Quebec and Premier Hepburn of Ontario did the spadework for this latter development at their recent conference in Montreal.

To Enforce Scale for Lumberjacks

Premier Duplessis in the legislature this past week, admitted that the government had not passed an Order-in-Council obliging pulp and paper companies to pay a minimum wage of $40 a month to lumberjacks engaged in wood cutting, but said the government planned to force the companies to maintain this scale.

"When we assumed office," he said, "we consulted the paper companies from Gatineau in the west to Gaspe in the east, and we made them understand that the government was going to exercise a severe control over the lumber and pulp and paper industry. This we plan to do.

"Under the Order-in-Council which we have adopted, the Government is the sole judge of what constitutes reasonable wages and reasonable living conditions. As far as wages are concerned, the Government believes that in general, insofar as lumberjacks are concerned, $40 a month is a reasonable salary under present conditions. The companies are bound to respect this scale under penalty of having their stumpage dues tripled."

Swiss Company Seeks Quebec Pulpwood

Members of a Swiss syndicate have interviewed Premier Duplessis and the Hon. Oscar Drouin, Minister of Lands and Forests, with a view to obtaining timber limits on the North Shore of the St. Lawrence, the object being to export more than 600,000 cords of pulpwood for newsprint manufacture for the European market. The understanding reached at the conference was said to be that contracts would be drawn up if the engineers acting for the Swiss syndicate reported favorably on the limits investigated.

Consolidated Earnings Higher

President L. J. Belnap, of the Consolidated Paper Corporation, in a letter to bondholders and shareholders accompanying the notice of meeting to be held on December 15, reported wide improvement in the earnings of the company for the first five months of the fiscal year.

Net operating results for the five months ended August 31, 1936, amounted to $1,375,184, this before depreciation, depletion and bond interest which contrasts with $2,269,450 for the fiscal year ended March 31, 1936, and $1,044,321 in 1935. In the fiscal year ended March 31, 1934, there was a loss of $235,141.

Mr. Belnap, commenting on the striking reduction effected in bank loans and company operations, said, in part: "Bank loans, which in June, 1931, totalled $21,740,089, amounted on August 31, 1936, to $9,186,784, a reduction of $12,553,305. Capital liabilities, Montreal Trust Company loan and bonds of subsidiary companies were reduced in the aggregate by $4,644,066. The total reduction in these liabilities is $17,197,371.

"At January 1, 1932, the date of the commencement of operations of the corporation, the total of the liabilities, other than the bonds and debenture stock of the corporation exceeded its current assets by $10,159,050. At August 31, 1936, this had been reduced to $2,729,007, an improvement of $7,430,042."

At the meeting to be held in December consideration will be given to a plan by which it is proposed to issue fifteen shares of common stock in lieu of interest on each $1,000 bond for the three year period ending July 2, 1939, being at the rate of 5 shares per $1,000 bond per annum. Interest for the year ending July 2, 1940, will be payable on the latter date, instead of semi-annually. Similarly, interest for the next year will be payable July 2, 1941.

If the company's net working capital on the preceding April 30, in each year, is in excess of $10,000,000, the interest may be paid in cash, providing such payment will not reduce the net working capital below $10,000,000.

The interest may, however, be paid in stock at the rate of five shares in lieu of interest per $1,000 bond per annum, or the interest may be paid in a combination of cash and stock, the latter being valued for the purpose at $11 a share.

To take care of this additional distribution of common stock, shareholders will be asked to increase the authorized capital from 2,000,000 to 3,500,000 shares.

Helpful to Newsprint Industry

There is some comment here as to the favorable effects on the Canadian newsprint industry of a decision understood to have been handed down by the Interstate Commerce Commission of the United States removing a surcharge on the freight rate on shipments of newsprint which has been in effect for two years. The exchange applied to all commodities and in the case of newsprint worked out to around 7 per cent. As Canadian companies generally pay the freight charges, the newsprint price being fixed on a New York basis, the removal of the charge will mean a saving of about 50 cents per ton. For practical purposes, this is of as much importance as an increase of 50 cents a ton in the price of the commodity. Assuming exports of 2,500,000 tons a year, the newsprint industry will benefit to the extent of $1,250,000 per annum. Removal of the surcharge on newsprint is effective from January 1, 1937.

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Grandfather Falls Mill to Resume Operation

Plant Purchased by J. N. Ward of Detroit Sulphite Pulp & Paper Co., and D. C. Everest, of Marathon Paper Mills Co. — Property Will be Reconditioned to Become Two-Machine Mill — Will Make Sulphite Specialties.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., November 16, 1936—Operation of the Grandfather Falls Paper Company mill at Merrill, Wis., will be resumed shortly with expanded production through a deal announced last week. The mill has been purchased by Joseph N. Ward, chairman of the board of the Detroit Sulphite Pulp and Paper Company, Detroit, Mich., and D. Clark Everest, vice-president and general manager of the Marathon Paper Mills Company, Rothschild, Wis.

These men also have purchased a paper machine from the defunct Tomahawk Pulp and Paper Company, Tomahawk, Wis., to be installed in the Merrill plant. The property will be reconditioned generally and modernized to become a two-machine mill. Heretofore it had one 130-inch Fourdrinier and was producing roll news, tablet, hanging and novel stock, with a 30-ton daily capacity. The ground wood mill has six grinders and four wet machines, and a 25-ton daily capacity.

Under plans of the new owners, the mill will produce a sulphite specialty line. Mr. Ward intends to move to Merrill to take personal charge of the reconditioning and the operations. He will utilize his many years of experience in the sulphite field.

The Grandfather Falls mill was closed down last Spring, following the sale of its power site and dam on the Wisconsin River to the Wisconsin Public Service Corporation. The payroll will be increased to take care of the contemplated increase in production.

Favorable Earnings Reports

Favorable earnings reports continue to be announced by Wisconsin mills. Nekoosa-Edwards Paper Company, Port Edwards, Wis., showed a net profit for the first nine months of this year of $36,648, as compared to a net of $15,784 for the same period in 1935. The 1936 net is equal to 60 cents a share on 60,931 shares outstanding, compared to 26 cents per share for 1935.

Hoberg Paper and Fibre Company, Green Bay, Wis., showed a net profit of $87,079 for the first nine months of this year, equal to $12.99 a share on preferred stock, and $3.06 on common.

Allis-Chalmers Manufacturing Company, Milwaukee, closed its nine months' operations September 30 with a net income of $3,580,813, as compared to $1,374,919 for a like period in 1935. The earnings are $2.30 per share for 1936 and $1.03 for 1935. These figures are before provision for federal surtaxes on undivided profits. Net current and working assets increased from $24,922,310 in the first nine months of 1935 to $29,588,866 as of September 30, 1936. Net sales are approximately $17,000,000 ahead of a year ago.

Consolidated Addition Completed

Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., has completed construction of a 400-foot concrete addition to the power dam at its mill at Biron, on the Wisconsin River. It replaces a wooden splashboard section that caused considerable trouble and expense during flood periods. The new wall is built on a solid footing 17 feet under the river bottom, and will eliminate a heavy loss of water through seepage. The wall provides a 23-foot head of water. Five 26-foot steel gates were included in the new section, giving the dam a total of 22 gates. A system of tubes has been installed which will detect future seepage should any fissures develop in the wall. Disastrous floods of the past will be eliminated under the new control system. The dam was planned and the work conducted by engineers of the Consolidated company.

Paper Chemistry Institute Conference

Secretaries of paper trade associations attended a conference beginning Friday afternoon, November 13, and extending through Monday, November 16, at the Institute of Paper Chemistry, Appleton, Wis. It included a general discussion of paper, paper manufacturing, paper properties, and technical trends in the paper industry, past and present. The speakers included the following members of the Institute staff: Dr. Otto Kress, technical director; Dr. Ben W. Rowland, Dr. J. A. Van den Akkker, Howard Morgan and John Graff, research associates.

This week Dr. Joseph Rossman, patent counsel of the Marathon Paper Mills Company, Rothschild, Wis., is giving his series of lectures before the students on the U. S. patent requirements as they apply to pulp and paper making. He is a former editor-in-chief of the *Journal of the Patent Office Society*, and an authority on the subject of patent law.

On Wednesday, November 11, Dr. George L. Clark, professor of chemistry at the University of Illinois, spoke at the Institute before the local chapter of the American Chemical Society. His subject was "Progress in the Study of Structures of Materials by X-rays." He has done considerable work on crystal structures and had a part in the development of the method of examining X-ray structural steel, steel rails and steel plate. He also has done fiber analysis by X-ray.

Dr. Otto Kress, technical director, and Charles E. Johnson, technical assistant at the Institute, have received three patents from the United States patent office at Washington for methods of making sized paper. One of them utilizes pulp containing a rosin size and particles of an alkaline earth filler material. Another applies to a paper web a waxy solution stabilized with water insoluble protein. A third covers a new sizing agent that can be used for sizing all grades of paper. Commercial rights have been assigned to the Institute of Paper Chemistry.

The former Dells Pulp and Paper Company, Eau Claire, Wis., is defendant in a suit brought by the Northern States Power Company and the Dells Improvement Company. The plaintiffs seek to recover $7,955.92, representing tolls on water rights claimed to be due them under contracts. The defense entered a demurrer during trial of the case last week before Judge James Wickham of the circuit court of Eau Claire. It stated the complaint did not set forth facts sufficient to constitute a cause for action.

Lowell Zabell, chemist of the Kimberly-Clark Corporation, Neenah, Wis., and Miss Willabelle Williams, of Neenah, were married last week at the First Methodist Church of that city.

William Wendorf, millwright for twenty years at the Marathon Paper Mills Company, Rothschild, Wis., died November 7 at a hospital at Wausau, Wis., after a week's illness. He was 60 years old.

Lick multiple-drive problems with Gilmer's "Fighting Five"

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1 TOP RUBBER — It's *tension* rubber with extra "give" created so that Gilmers instantly flex to fit any groove perfectly — but tough enough so that Gilmers ride right without sinking too far. The moment flexing starts Gilmer *straight* sides bulge evenly, locking the sidewalls in a slipless power-grip. Gilmers eliminate "misfits" that cripple efficiency. Gilmers always are *wedged to work.*

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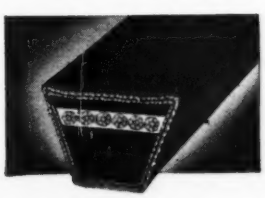
3 BOTTOM RUBBER — Brute-strength rubber, developed after many tests, supports the Gilmer pulling cords in a parallel plane, no matter how heavy the load. This special rubber is *heat-resisting.* Gilmer makes high speeds possible, because Gilmer V-Belts *run cool.*

4 DOUBLE JACKET — Gilmer uses two jackets and more than triples the wear you get. These twin jackets protect the working parts of Gilmer V-Belts from oil, grease, and dirt. The thin film of flexible rubber between the two jackets distributes the wear evenly and prevents worn spots at any one point.

5 CONTROLLED STRETCH — Every Gilmer V-Belt is pre-tested for stretch under maximum load, and built to insure the correct length at full working tension. Gilmer V-Belts on multiple drives match perfectly and permanently in operation.



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Canadian Pulp and Paper Industry Improving

Pres. S. H. Logan, of Canadian Bankers Association, Marks Expansion of Newsprint Export Trade—Urges Price Increase Commensurate With Manufacturing and Overhead Charges—Spot Sales Become Important Factor.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., November 16, 1936—General business is improving rapidly in Canada and the pulp and paper industry is sharing in the upward trend. At the annual meeting of the Canadian Bankers Association which was held in Toronto on November 12 the president, S. H. Logan, in his annual address, said the association regarded the marked expansion in export trade as the most influential factor in raising general business activity by ten per cent. The forest industries were in the vanguard in this movement and increased their production by about fifteen per cent, that of newsprint soaring to a record height and close to the practical limit of capacity. "This is a stage," remarked Mr. Logan, "which justifies a price for the product at least commensurate with operating and overhead charges plus a reasonable scale of profits as compensation of the heavy depletion in the forest wealth of Canada which has followed such intensive activity in this particular industry."

Last month's output of newsprint demonstrated the manner in which the industry has been overhauling excess capacity built up previous to the depression. It is reported that "spot" sales have become a more important factor in operations and that some of the companies have not recently been able to fill contract requirements with the output of their own plants. Certain contracts are said to have been made with customers to fill a proportion or all their requirements and not a fixed amount, and demand has been mounting.

New Power Rates in Effect

The new power rates for all pulp and paper companies served by the Thunder Bay system and authorized recently by the Ontario Hydro Electric Power Commission are now in full effect. The rates are $18 per h.p. per annum for companies served at 110,000 volts and $19 h.p. per annum for companies at 22,000 volts. Among the companies receiving the benefit of the reduced rate are the Nipigon Corporation, Nipigon,; Great Lakes Pulp and Paper Company, Fort William; Thunder Bay Paper Company; Port Arthur, and Provincial Paper, Port Arthur. The rate reduction to the pulp and paper industry has been made possible by a large increase in load taken by mining companies in the Little Long Lac and Sturgeon River districts and also by a large increase in load by the paper mill industry itself. Both of these loads are being supplied from spare capacity available in the Nipigon Developments and represent a large increase in revenue to the Hydro Commission without the necessity of a corresponding increase in capital expenditure.

Improvements for B. C. Paper Mills

Lawrence Killam, president of the Canadian Club and also head of the British Columbia Pulp and Paper Company, recently delivered an interesting address before the Real Estate Exchange at Vancouver, in which he stated that the Pacific Coast industries were definitely handicapped in the cost of machinery as compared with plants turning out a similar product in the neighboring states. He intimated that the company intended spending $400,000 in permanent improvements during the coming year, and outlined how the company's plans had been developed during late years. Mr. Killam touched upon the utilization of hemlock, a type of timber well fitted for paper making and rayon pulp, and referred to the development of by-products industries arising in the processing of raw material.

Record Wood Cutting Season

The Hon. J. S. McDiarmid, Minister of Mines and Natural Resources for Manitoba, says that preparations are under way for the largest wood cutting season on record. Orders for 90,000 cords of wood—over three times the amount called for last winter—will keep settlers of Manitoba's wooded areas busy all this winter, and put $750,000 in circulation in the way of wages, freight hauls, etc. One of the most satisfactory features of pulpwood contracts this winter is that the work is being spread across the province instead of being confined to one area. One reason for this development is that the Manitoba Pulp and Paper Company's newsprint mill at Pine Falls is very busy, with both units in operation, turning out 250 tons a day.

News of the Industry

Word has been received at the Crown Lands office in Sault Ste. Marie, Ont., to the effect that the Crown dues for pulpwood in areas burned over by forest fires last summer will be 50 cents a cord instead of the usual $1.40. It is understood that there are more than 150,000 cords in the district available for cutting at the 50 cent rate.

A provincial charter has been granted to Perry Sales Company, Ltd., with an authorized capital of $40,000 and head office in London, Ont., to buy, sell and deal in all kinds of paper and paper products, and to carry on the business of manufacturing stationers, printers, paper makers, etc. Among the incorporators are Harold L. Steele and John W. McMaster, both of Toronto.

Under the provisions of the Ontario Companies Act, the name of the Shipman Paper Company, Ltd., which was incorporated in 1931, has been changed to the Greensville Paper Company, Ltd., with head office at Greensville, Ont.

A provincial charter has been granted the Rainy Lake Lumber Company, Ltd., with head office in Toronto and an authorized capital of $40,000 to carry on in all its branches the business of lumber and timber merchants, pulpmill owners, etc. Among the incorporators are Charles H. A. Armstrong, Angus W. Roe and K. G. Morden, all of Toronto.

The Don Valley Paper Company is erecting a new office building on the site of the mill in Todmorden, near Toronto. The structure is of pressed brick, one story and basement, 30 x 40 feet. On its completion, the company will move its head office from Bay street, Toronto, to its new business home.

Somerville Paper Box Ltd., London, Ont., is this year celebrating the 50th anniversary of the birth of the firm, of which Geo. M. Hobart is general manager. The company has had a very busy season in all departments.

C. A. Duval, of Sault Ste. Marie, Ont., has secured a contract to take out 20,000 cords of jack pine from township 125, north of Massey, for the Central Paper Company, Muskegon, Mich. This will be the first time jack pine has been cut in quantity in Algoma.

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Origin of Paper Merchants, Inc. Dates Back to 1898 When Riegel & Co. Started Handling Coarse Paper—Fine Paper Division Established in 1905 —Paper Merchants, Inc. Was Formed to Take Over Business In 1929.

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., November 16, 1936—Under the caption "Time and Us," Paper Merchants, Inc., have issued the following statement: "The origin of this company dates back to 1898, about the turn of the century. Riegel & Co., Inc., started in business handling wrapping paper and paper bags at 16 South Sixth street, George Riegel, as owner. In 1905 under the supervision of the late Edward J. McCorkendale, they established a fine paper division, the company becoming distributing agents for Old Deerfield Bond (Millers Falls Paper Company), Parsons Paper Company, Esleeck Manufacturing Company, Hollingsworth & Whitney Company and distributed fine papers from a number of the representative mills of the country. In 1912 when the Hammermill Paper Company instituted dealer distribution and nationally advertised Hammermill Bond, the company became agents for Hammermill products, although they had previously sold Hammermill products under Riegel brand names. Expansion demanded more warehouse space and better facilities in 1917, and the company moved to 46 North Sixth street, at which time the whole physical equipment was modernized and the personnel enlarged.

"1919 is marked particularly in our march of time for in that year we became distributors for American Writing Paper Company's products. Riegel & Co., Inc., at that time took over the personnel of the Dill & Collins city sales force as well as the operation of the central warehouse located at 140 North Sixth street, and moved to that location.

"George E. Riegel retired in 1929, and Paper Merchants Inc., a corporation headed by Winfield Predmore and organized by him and a group of Riegel employees, purchased Riegel & Co. Inc. Due to possible confusion with the Warren Manufacturing Company, another Riegel interest which later became The Riegel Paper Corporation, the company discontinued the Riegel name in 1930. Arthur B. Sherrill was treasurer and general manager of Riegel & Co., Inc., throughout that company's existence.

"Through four years many changes in personnel were effected. Following the death of Edward J. McCorkendale in 1931, Ormond Freile succeeded him as sales manager and soon after became vice-president. In 1934, agency relations with the Dill & Collins were discontinued and Paper Merchants Inc. became agents for Champion papers, Kimberly Clark, L. L. Brown and others.

"Close to four decades this company has survived bad times and enjoyed good ones. Today it is largely manned by men and women who have served its interests through many of these years, among whom are: George E. Randall, cost department, 38 years; John G. Seckel, vice-president, 34 years; Winfield Predmore, president, 30 years; Frederick C. Van Gilder, assistant secretary, 21 years; C. H. Nichols, director, 21 years; John K. Quinn, sales department, 16 years; Morton J. Porter, assistant sales manager, 15 years; Edwin D. Shepherd, sales department, 15 years; Miss Natalie Hanna, accounting department, 17 years and Miss Audrey Townsend, secretary to president, 14 years."

Paper Salesmen's Study Course

The first in the series of lectures of the paper salesmen's study course, under the direction of the Paper Trade Association of Philadelphia, was held in the Philadelphia Chamber of Commerce Building, Twelfth and Walnut streets, on Thursday evening, November 12. Seated at the speakers' table were Ross W. Fishburn, vice-president of Whiting-Patterson Company; A. H. Melville, merchandising counsellor-industrial education specialist, State College, Pa.; Ormond Freile, vice-president, Paper Merchants Inc.; John R. Howarth, Howarth Paper Company; Thomas J. Hare, Jr., vice-president, Atlantic Paper Company; W. B. Killhour, Jr., president of Quaker City Paper Company; and Mrs. Doris E. Lewis, executive secretary, Paper Trade Association. Interspersed among the student group were George K. Hooper, president of Hooper Paper and Twine Company and T. H. B. Smythe, head of J. L. N. Smythe Paper Company.

Ormond Freile held the close attention of all those present by his compelling address on "Getting the Customer's Point of View." Mr. Melville followed Mr. Freile with a "straight from the shoulder" talk on "Why This Kind of Education." Lectures for this course are scheduled for every Thursday evening from 7 to 9 o'clock in the Philadelphia Chamber of Commerce, excepting the dates which are set aside for plant visitations.

Jobbers' Association Elects

Arthur H. Lewis, secretary of the Paper and Bag Jobbers' Association of Philadelphia, announces the election of the following officers to serve for the fiscal year: Frank Dubin, chairman; Charles Resnick, vice-chairman; Arthur H. Lewis, secretary. This organization, which comprises ninety-five per cent of the jobbers doing business in metropolitan Philadelphia, is starting on what they hope to be the most successful season since its inception in 1930. A permanent organization committee has been formed, its members consisting of the following: Frank Dubin, chairman; Charles Resnick, Charles Mather, of Mather Paper Company; Henry Adler of Huff Paper Company; Harry Hogg, of Hogg Paper Company; Harry Goldrich, of Delaware Novelty Company, Wilmington; H. K. Chipman, of Chipman Paper and Twine Company, Wilmington; Benjamin Tubis, of the Tubis Paper Company; Daniel Rugowitz, of D. Rugowitz & Co.; Benjamin Kessler, of B. Kessler Paper Company; Jack Zacker of Atlas Paper Products, and Mr. Lewis.

Delaware Valley TAPPI To Meet

The Delaware Valley Section of the Technical Association of the Pulp and Paper Industry will meet at the Engineers Club, Philadelphia, Pa., Friday evening, November 27th at 6:30 p. m.

Prof. E. R. Schwarz of the Massachusetts Institute of Technology will talk on "The Application of Microscopic Observations to Various Research Problems." The talk will be illustrated with slides. E. A. Georgi of the Hercules Powder Company will also discuss this subject with particular reference to the cellulose fiber.

Aldine Paper Co. Moves

The Aldine Paper Company has removed to larger and more convenient quarters at 373 Fourth Avenue, New York. The new telephone number is Murray Hill 4-5602.

COULD YOU USE A JORDAN PLUG THAT CAN *take it?*

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Division of THE BLACK-CLAWSON CO., Hamilton, Ohio

Paperboard Industry Runs at 79 Per Cent

Monthly statistics on Paperboard, .012 of an inch in thickness for September compared with preceding months have been released by Director William L. Austin, Bureau of the Census, Department of Commerce, and are presented in the following tables. The statistics for August, 1936, were compiled from data furnished by the National Paperboard Association from reports of members and by manufacturers reporting direct to this Bureau.

Production for September

The production of paperboard for September, 1936, amounted to 328,519 short tons, or 79.1 per cent of the rated capacity of the mills reporting. The ratio of inch hours of operation to rated capacity for September, 1936, was 78.5 per cent, as compared with 76.5 per cent for August, 1936, 71.4 per cent for September, 1935, and 62.4 per cent for September, 1934.

TABLE I
INCH HOURS OPERATED, PRODUCTION, AND ORDERS
(95 MANUFACTURERS)

Year and Month	Operated (Inch hours) (Based on last dryer width) Rated capacity	Operation for month	Per cent of rated capacity	Production (Short tons) Rated capacity	Production during month	Per cent of rated capacity	New orders received during month (short tons)	Unfilled orders, end of month (short tons)
1936								
Jan.	15,251,225	9,963,914	65.3	427,564	270,928	63.4	283,890	94,210
Feb.	14,143,988	9,682,428	68.5	396,354	271,107	68.4	268,843	91,917
Mar.	14,583,725	10,128,474	69.5	411,199	285,257	69.4	290,854	96,202
April	14,627,093	10,452,616	71.5	412,191	294,929	71.6	298,180	99,796
May	14,497,925	10,140,595	69.9	407,729	289,527	71.0	280,899	92,784
June	14,545,973	10,186,905	70.0	409,510	288,682	70.5	290,098	96,402
July	15,057,386	10,699,561	71.1	429,139	299,033	69.7	304,747	101,557
Aug.	14,545,972	11,122,150	76.5	416,338	319,391	76.7	332,553	117,443
Sept.	14,466,821	11,359,779	78.5	415,126	328,519	79.1	353,197	135,732
Total (9 mos.)	131,720,108	93,736,422	71.2	3,725,150	2,647,373	71.1	2,703,261	.....
1935								
Jan.	15,455,578	9,793,592	63.4	416,501	262,026	62.9	273,151	80,987
Feb.	13,636,918	9,308,323	68.3	366,598	251,870	68.7	252,578	84,341
Mar.	14,709,922	10,029,490	68.2	398,949	275,770	69.1	268,360	79,049
April	14,901,848	9,543,895	64.0	402,831	260,851	64.8	255,730	79,296
May	15,498,589	9,615,348	62.0	418,324	262,463	62.7	259,995	80,367
June	14,284,978	9,418,123	65.9	385,742	256,665	66.5	248,656	78,020
July	15,592,118	9,397,786	60.3	423,545	260,207	61.4	259,486	78,241
Aug.	15,592,118	10,450,399	67.0	423,545	291,127	68.7	297,349	86,767
Sept.	14,380,430	10,273,750	71.4	390,840	289,596	74.1	307,103	105,088
Total (9 mos.)	134,052,499	87,830,706	65.5	3,626,875	2,410,575	66.5	2,422,408	.....
Oct.	16,108,039	12,404,641	77.0	434,717	345,596	79.5	351,887	107,074
Nov.	13,598,280	10,526,226	77.4	399,897	294,290	73.6	272,477	88,971
Dec.	14,770,746	8,818,058	59.7	400,139	243,594	60.9	234,753	81,894
Total (Year)	178,529,564	119,579,631	67.0	4,861,628	3,294,055	67.8	3,281,525	.....
1934								
Jan.	14,879,791	8,506,259	57.2	406,760	233,182	57.3	220,554	63,665
Feb.	13,227,743	8,475,759	64.1	355,554	227,140	63.9	238,225	75,759
Mar.	15,135,748	9,844,248	65.0	405,206	263,199	65.0	273,298	86,440
April	14,018,872	9,282,387	66.2	376,756	251,324	66.7	237,539	76,867
May	15,274,886	8,716,342	57.1	409,487	231,107	56.4	233,877	81,293
June	14,847,757	8,528,498	57.4	397,005	228,078	57.4	218,369	73,473
July	14,422,003	7,645,095	53.0	395,518	208,252	52.7	207,352	74,088
Aug.	15,442,025	9,116,133	59.0	428,140	250,931	58.6	251,073	72,386
Sept.	14,323,043	8,935,783	62.4	397,277	243,764	61.4	239,196	73,114
Total (9 mos.)	131,571,868	79,050,504	60.1	3,571,703	2,136,977	59.8	2,119,483	.....
Oct.	15,531,484	9,810,027	63.2	417,150	267,456	64.1	259,557	69,198
Nov.	14,893,816	8,614,549	57.8	396,757	229,754	57.9	220,841	62,537
Dec.	14,803,783	7,726,155	52.2	381,419	205,518	53.9	207,589	65,784
Total (Year)	176,800,951	105,201,235	59.5	4,767,029	2,839,705	59.6	2,807,470	.....

TABLE II
CONSUMPTION AND STOCKS OF WASTE PAPER
(85 MANUFACTURERS)

Year and Month	Consumption of waste paper (short tons) Rated capacity	Consumed during month	Per cent of rated capacity	Stocks of waste paper at plants, end of month (short tons)
1936				
January	370,319	229,064	61.9	216,040
February	343,024	226,216	65.9	193,919
March	356,763	237,601	66.6	204,376
April	356,746	245,566	68.8	204,353
May	356,463	241,895	67.9	213,435
June	359,359	241,656	67.2	218,330
July	371,692	249,402	67.1	219,042
August	359,360	268,770	74.8	207,886
September	357,870	281,046	78.5	191,408
Total (9 months)	3,231,596	2,221,216	68.7	.....
1935				
January	359,167	210,812	58.7	210,520
February	322,920	211,560	65.5	214,069
March	345,236	231,584	67.1	207,987
April	347,845	217,300	62.5	214,680
May	361,312	219,767	60.8	222,519
June	334,875	213,523	63.8	230,365
July	366,084	217,934	59.5	233,784
August	366,084	246,537	67.3	288,137
September	337,395	244,963	72.6	220,998
Total (9 months)	3,140,918	2,013,980	64.1	.....
October	373,312	288,668	77.3	214,685
November	345,005	246,318	71.4	213,297
December	344,705	196,429	57.0	211,029
Total (Year)	4,203,940	2,745,395	65.3	.....
1934				
January	309,593	173,300	56.0	178,545
February	307,577	180,765	58.8	197,540
March	380,710	229,772	60.4	206,060
April	322,533	197,741	61.3	215,648
May	325,006	176,018	54.2	227,877
June	397,931	207,476	52.1	221,836
July	429,348	228,313	53.2	233,048
August	348,924	208,332	59.7	232,819
September	331,857	207,766	62.6	244,467
Total (9 months)	3,153,479	1,809,483	57.4	.....
October	362,732	230,695	63.6	231,094
November	347,053	196,461	56.6	226,941
December	346,978	173,314	49.9	223,692
Total (Year)	4,210,242	2,409,953	57.2	.....

October Newsprint Statistics

The News Print Service Bureau reports that production in Canada during October, 1936 amounted to 301,106 tons and shipments to 307,250 tons. Production in the United States was 81,027 tons and shipments 81,544 tons, making a total United States and Canadian newsprint production of 382,133 tons and shipments of 388,794 tons. During October, 30,677 tons of newsprint were made in Newfoundland, so that the total North American production for the month amounted to 412,810 tons. Total production in October, 1935 was 378,175 tons.

The Canadian mills produced 356,708 tons more in the first ten months of 1936 than in the first ten months of 1935, which was an increase of fifteen and nine tenths per cent. The output in the United States was slightly greater than for the first ten months of 1935. In Newfoundland production was 8,253 tons or three per cent less, with no production in Mexico, making a net increase of 333,020 tons, or ten and one tenth per cent.

Stock of newsprint paper at Canadian mills were reported at 59,574 tons at the end of October and 16,424 tons at United States mills making a combined total of 75,998 tons compared with 82,596 tons on September 30, 1936 and 87,658 tons on October 31, 1935.

Tayloe Paper Co. Buys Warehouse

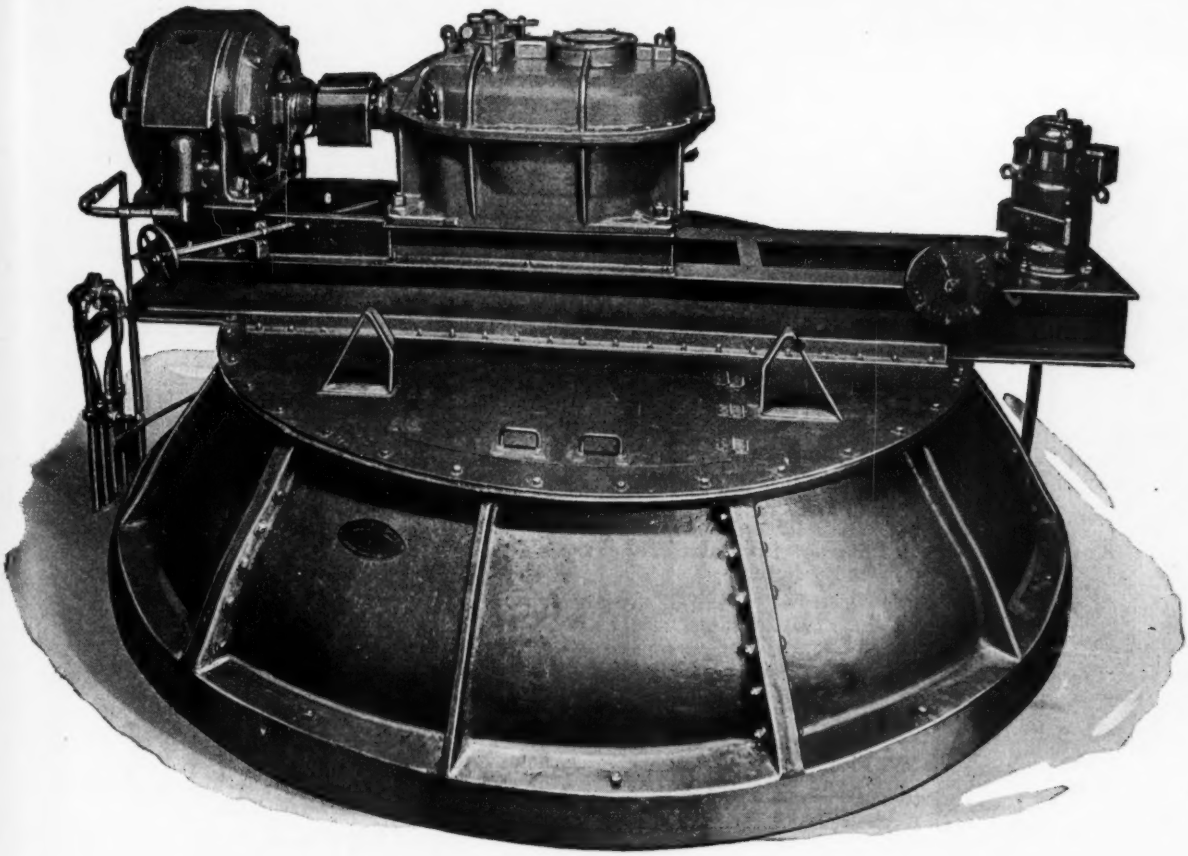
The Tayloe Paper Company, of Memphis, Tenn., has bought the warehouse in Jackson, Miss., occupied by their branch there, the Townsend Paper Company. The property is triangular, 303 feet on the Illinois Central tracks.

Case To Pay Creditors Dividend

The creditors of the Case Manufacturing Company, Unionville, Conn., are about to receive their first dividends. This company made special papers and had financial difficulties in 1931.

New Howard Folder

The Howard Paper Company, of Urbana, Ohio, has just issued an attractive new folder describing Howard Bond and enclosing sample letter-heads.



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Let's talk plain facts . . . let's talk about Mullen increase . . . about Tear resistance . . . about Freeness drop . . . and about Power per ton of production . . .

Let's not talk about only one . . . that is fallacy . . . the picture must be complete . . .

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VALLEY VORTEX BEATER

45 YEARS OF BEATER-BUILDING EXPERIENCE

Obituary

Anthony H. Walburg

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, November 16, 1936—Anthony H. Walburg, 68 years old, one of the leading industrialists in the Miami Valley, died Sunday, November 7, in the Middletown Hospital, Middletown. He was manager of the estate of the late Paul J. Sorg, for many years the owner of large mill interests and had held this position since shortly after the death of the widely-known paper manufacturer.

As the manager of the Sorg estate, Mr. Walburg was a member of the boards of directors of the following interests: The P. A. Sorg Paper Company; the Raymond Bag Company, the Lawrence Bag Company; the First American Trust and Savings Bank of Middletown; and the American Seating Company, Chicago, Ill.

Mr. Walburg also was treasurer of the Harding-Jones Paper Company, of Excello, just south of Middletown; president of the Middletown Citizens Finance Company; a member of the Middletown Lodge of Elks, and of the Holy Name Society of Holy Trinity church.

He is survived by his widow; one daughter, Mrs. Horace Rinearson, Pittsburgh, Pa.; two brothers, Harry Walburg, Middletown, and Paul Walburg, Cincinnati; and four sisters, Mrs. Albert Fisher, Mrs. David Burkhardt, Mrs. William Zebel and Miss Anna Walburg, all of Cincinnati.

James W. Rice

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., November 14, 1936—James W. Rice, 64 years old, vice-president and manager of the W. C. Stebbins Company, mill supplies, died this week at his home from heart disease. Although in ill health for some time his death was unexpected by his friends and business associates.

Prior to becoming connected with the company he served as a sales representative for the Waterbury Felt Company, of Skaneatles.

In 1913 he became a traveling salesman for the Stebbins concern and several years later he was made manager with complete supervision of sales. After the death of Mr. Stebbins in 1923 the company was chartered and in 1926 Mr. Rice was made vice-president and manager.

He was widely known in the paper industry and was virtually in charge of the entire business of the company. The principal survivors are his wife and two sons.

Albert N. Lowe

FITCHBURG, Mass., November 16, 1936—Word was received here Friday night of the death in Lakeland, Fla., of Albert N. Lowe, aged 84, founder and former president of the Falulah Paper Company here and the Safety Fund National Bank.

He is survived by five sons, Irving F., president of the Falulah Paper Company; Ernest P. of California; Joseph A., a former mayor of this city and vice-president of the Falulah Paper Company; Guy A. R. Lowe of Orange, Ralph P. of Worcester; a daughter, Miss Charlotte E. Lowe of Fitchburg; four brothers, Frank of Montpelier, Vt.; George of Gardner, John of Rochester, N. Y.; David of Fitchburg, and four sisters, Mrs. Ellen Merriam of this city, Mrs. Ida Riggs of North Carver, Mrs. Marion Osgood of Akron, Ohio, and Mrs. Harriet Wright of Fitchburg.

Daniel De Witt Howard

WILMINGTON, Del., November 16, 1936—Daniel De Witt Howard, former official of the National Vulcanized Fibre Company, died recently of pneumonia. He was 82 years old.

Mr. Howard was born at Benson, Vt., a member of the old Colonial families.

He was a pioneer in the manufacture of hard fiber and founded the Indurated Paper Company in Keene, N. H.

Later Mr. Howard founded the Fibre Specialty Company at Kennett Square, Pa., and became affiliated with the Keystone Fibre Company of Chester, Pa.

The latter concern was absorbed by the National Vulcanized Fibre Company of Yorklyn, Del., and Mr. Howard served as sales manager of its trunk fiber division until his retirement five years ago.

A daughter, Miss Edith Lucile Howard, a landscape painter, survives.

John Belanger

TORONTO, Ont., November 16, 1936—John Belanger, mill superintendent of J. R. Booth Ltd., Ottawa, passed away recently at his home in that city. He had been at work as usual during the morning and appeared to be in good health when he went home for lunch. He was shortly after seized with acute indigestion and passed away in a few hours. Mr. Belanger was one of the best known employees in the Booth organization, and was 64 years of age. He was born and educated in Brockville, and some years ago worked in the state of Wisconsin, but located in Ottawa in 1908. Surviving are his wife, three sons and two daughters.

Harry Balm

ST. PETERSBURG, Fla., November 14, 1936—Harry Balm, retired vice-president and general manager of Kilgours, Ltd., paper manufacturers of Toronto, Ont., died at his winter home here recently at the age of 71. His widow, a son and a daughter survive.

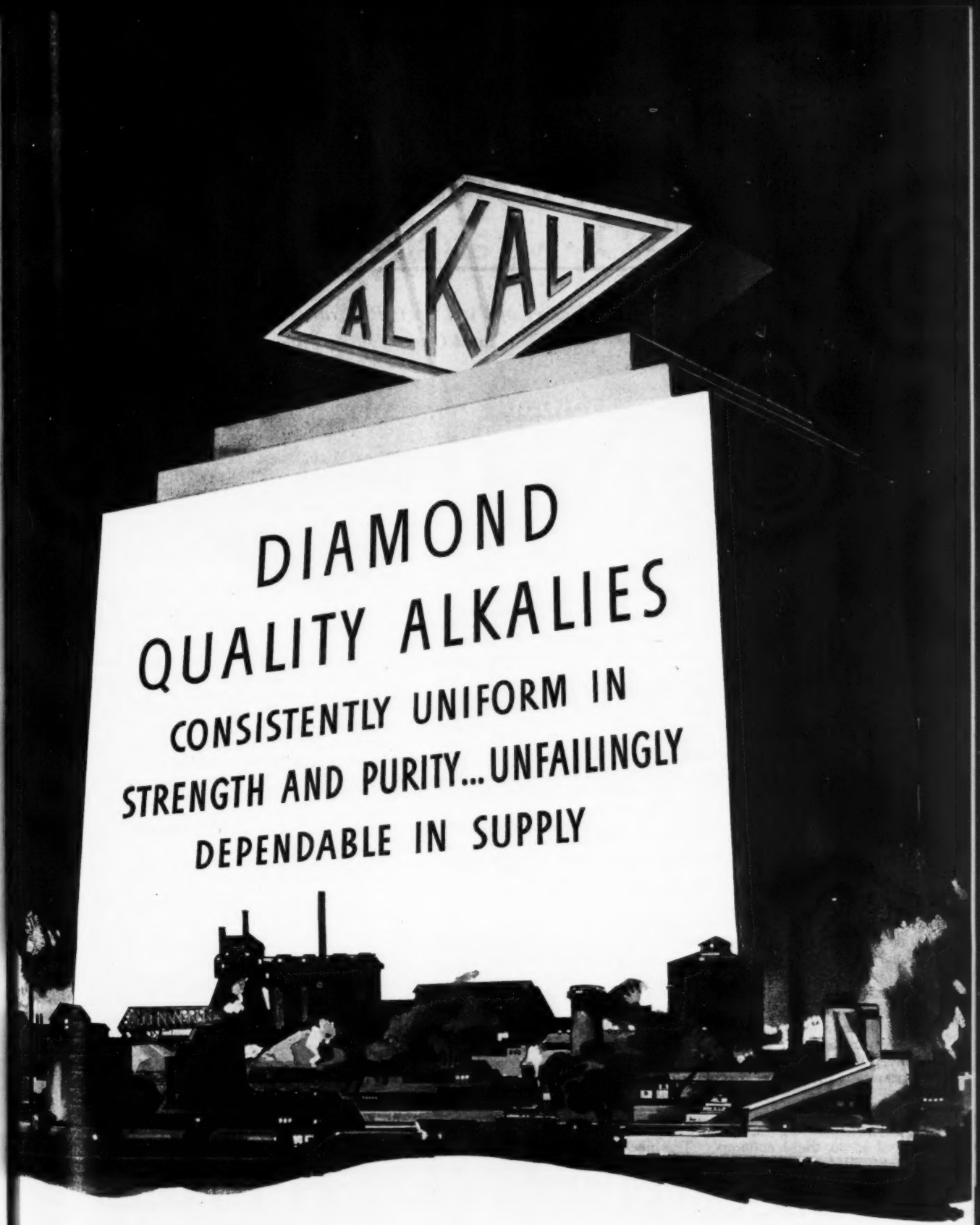
W. H. Hewins With Gummed Products Co.

Roth Herrlinger, president of The Gummed Products Company, Troy, Ohio, makers of Trojan Gummed Paper, Sterling "Tread" Gummed Tape, and Trojan Gummed Tape, announces the appointment of William H. Hewins who will have charge of sales to paper merchants.

Mr. Hewins brings to the company a broad experience in the paper industry and a wide range of acquaintances among the paper merchants throughout the country. He is thoroughly familiar with the problems of the paper merchant, having been president of the Ashtabula Paper and Twine Company, Ashtabula, Ohio.

When the National Paper Trade Association was looking for a paper executive to assist in field work twelve months ago it secured Mr. Hewins and for a year his services undoubtedly established a broader understanding of the Association's real worth to the merchandising division of the paper industry.

Mr. Hewins' coming with The Gummed Products Company is most timely. It is in line with the tremendous expansion program the company has put into effect during the last few months, which includes, in addition to the increase in personnel, the building of a modern plant equipped to the minute with the latest of facilities, and the increase of floor space to permit a greater increase in production to meet the additional demand for its products which the company has enjoyed since the new mill has been in operation.



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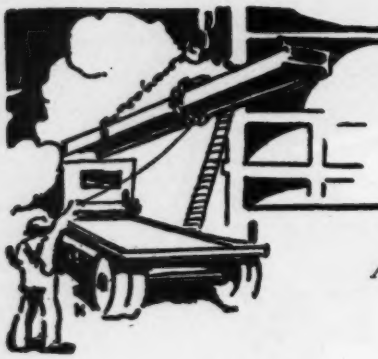
PITTSBURGH *AND* EVERYWHERE



CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Grand Rapids, Mich.—The American Box Board Company, manufacturer of box board and test liner products, has plans under way for new addition to mill on Godfrey avenue, to be three-story, 75 x 350 feet. It will be used primarily for storage and distributing service, and is estimated to cost close to $125,000, with equipment. Work is scheduled to begin at early date.

East Rutherford, N. J.—The Flintkote Company, 50 West Fiftieth street, New York, N. Y., manufacturer of roofing and other building papers, etc., has awarded general contract to the Ferber Construction Company, 16 Johnson avenue, Hackensack, N. J., for proposed new addition to mill at East Rutherford, forming part of expansion program of company, recently referred to in these columns. New unit will be three-story and basement, 125 x 265 feet, and is estimated to cost over $300,000, including equipment. Superstructure will be placed under way at early date.

Indianapolis, Ind.—The General Fibre Products, Inc., manufacturer of fibre specialties, has been merged with the Rockwood Manufacturing Company, 1801 English avenue, and will be known in the future under the last noted name.

Tacoma, Wash.—The Schaffer Pulp Company, East Eleventh street and Hylebos Waterway, manufacturer of unbleached sulphite pulp, has plans in progress for new additions to mill, comprising several units to increase capacity of plant to about 125 tons per day. New additions will be used primarily for the production of processed pulp for use as raw material in the rayon industry and will be equipped to give employment to about 65 additional workers, making a total quota of 225 employes at the mill. It is proposed to award general contract for initial unit at early date. Entire project is reported to cost over $125,000, with machinery. Arthur W. Berggren is head.

Huntington, W. Va.—The Owens-Illinois Glass Company, Ohio Building, Toledo, Ohio, has awarded general contract to the Hughes-Foulkrod Company, Chaff Building, Philadelphia, Pa., for new one-story building on tract of land in vicinity of Seventh street and Washington boulevard, Huntington, recently acquired, as previously referred to in these columns. The new structure will be 220 x 330 feet, and will be used in part for corrugated paper box division, including storage and distributing departments. It will cost over $150,000, with equipment. Superstructure will be placed in progress at early date.

Malone, N. Y.—Malone Special Papers, Inc., has been organized with capital of 1,500 shares of stock, no par value, to manufacture paper products. New company will operate a local mill and is reported to be taking over an existing plant in this vicinity, now idle. Operations are expected to begin at early date. New company is represented by Allen & McClary, 45 East Main street, Malone, attorneys.

Cheboygan, Mich. — The North American Pulp and Paper Corporation has begun remodeling and improving the former sulphite pulp mill of the Cheboygan Paper Mill, idle for some time past, and will provide modernized equipment for bleaching pulp and de-inking paper. It is proposed to have work completed so that unit will be ready for service early in 1937, when additions will be made to the working force.

Rochester, N. Y.—The Defender Photo Supply Company, 664 Driving Park avenue, manufacturer of processed photographic papers, etc., has work nearing completion on two new additions to plant, previously referred to in these columns, and will have structures ready for service at early date. New units will be known as Factory Building D and F, comprising a two-story structure, 46 x 105 feet, and one-story building, 25 x 85 feet. Miscellaneous completion contracts have been let, including award for painting to Adrian Vyverberg, 704 Parsells avenue, Rochester. Entire project will cost over $60,000, including equipment. Frank Maggio & Brothers, 374 Augustine street, Rochester, are general contractors. Smith & Stockney, 154 East avenue, are architects.

Los Angeles, Cal. — The Western Waxed Paper Company, 910 East Sixty-first street, manufacturer of waxed and processed paper products, has awarded general contract to the Austin Company of California, 777 East Washington Boulevard, Los Angeles, for alterations and improvements in plant, including installation of new mezzanine floor and other work. Construction will be placed under way at once. No estimate of cost has been announced.

Houston, Tex.—Recent reports that the Champion Paper and Fibre Company, Hamilton, Ohio, would make further additions in near future to sulphite pulp mill now in course of construction at Pasadena, near Houston, are stated to be incorrect by Alexander Thomson, chairman of the board, and no such expansion is under consideration at this time. Mill now in course of erection is scheduled for completion next February and will represent an investment of more than $3,000,000.

Chicago, Ill. — The Celotex Corporation, 919 North Michigan Boulevard, Chicago, manufacturer of building board specialties, insulating board, etc., has filed notice of increase in capital from $3,000,000 to $9,000,000, portion of additional capital to be used for expansion in operations. Company has recently acquired plant and business of Calicel Company, Marietta, Ohio, manufacturer of allied products, and is said to have plans under way for expansion in that new branch plant for increased capacity.

Wilmington, Del. — The National Vulcanized Fibre Company, Maryland avenue and Beech street, has taken

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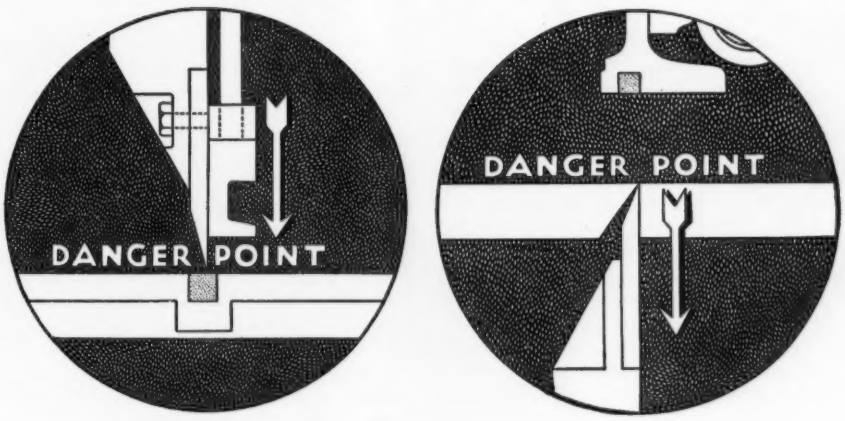

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Only UNDERCUTS *are truly Safe*

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The SMITH & WINCHESTER

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3925

PLANT AND OFFICES AT SOUTH WINDHAM, CONNECTICUT

out a permit for installation of fire sprinkler system and other improvements in mill, and will place work under way at once.

Dayton, Ohio—The Egry Register Company, 317 East Monument avenue, manufacturer of mainifolding registers, commercial paper products, etc., has asked bids on general contract for new addition to plant, to be one-story, 81 x 140 feet, reported to cost over $50,000, with equipment. It will be used primarily for storage and distributing divisions. Schenck & Williams, Third National Bank Building, Dayton, are architects.

Chandler, Que.—A company is being organized to take over the local pulp mill of the Premier Pulp and Paper Corporation, idle for some time past. The project will be carried out under Government authority, which will grant timber rights to the new organization. It is expected to make a number of improvements in the mill property, including required equipment installation in different departments.

Cornwall, Ont.—The Smith Chemicals, Ltd., recently organized as an interest of the Howard Smith Paper Mills, Ltd., to operate new local plant, using certain byproducts of paper mills for raw materials, has awarded general contract to the Anglin-Norcross Company, Ltd., Montreal, Que., for initial plant unit. Superstructure will be placed in progress at once. New plant is estimated to cost close to $100,000, including equipment.

New Companies, Etc.

New York, N. Y.—The Best Container Corporation has been organized with capital of $20,000, to manufacture and deal in paper boxes, containers of various kinds and similar paper goods. New company is represented by Samuel Silverman, 274 Madison avenue, New York, attorney.

New York, N. Y.—The General Coated Products, Inc., has been chartered with capital of $500,000, to manufacture and deal in coated paper stocks, etc. New company is represented by Philip Newbold, 880 Broadway, New York, attorney.

Chicago, Ill. — Cellulose Research, Inc., has been incorporated with capital of 55,000 shares of stock, no par value, to manufacture and deal in cellulose and affiliated pulp products. The incorporators include Samuel J. Walker and C. T. Adams. New company is represented by Adams & Hawley, 100 West Monroe street, Chicago.

Indianapolis, Ind.—The Indianapolis Paper Container Company, 217 West Tenth street, has filed notice of company dissolution under state laws.

Wilmington, Del.—The Cap Seal Corporation has been chartered in Delaware under direction of Corporation Trust Company, Industrial Trust Building, Wilmington, with capital of 500 shares of stock, no par value, to manufacture and deal in paper cartons, caps, seals, milk bottle caps, etc.

New York, N. Y.—The Midland Container Corporation has been incorporated with capital of $200,000, to manufacture and deal in paper boxes and containers, etc. New company is represented by Haaren & Barrett, 39 Broadway, New York, attorneys.

Wilmington, Del. — Braunstein Freres, Inc., has been chartered in Delaware under direction of United States Corporation Company, Dover, Del., with capital of 1,000 shares of stock, no par value, to manufacture and deal in paper products of various kinds.

Franklin, Ohio—The United States District Court, Cincinnati, has appointed Arthur R. Whitehead, Toledo, Ohio, and Jay Leach, Dayton, Ohio, as co-receivers for the Miami Valley Coated Paper Company, Oxford road, Franklin, with bond of last noted receiver fixed at $25,000.

The Evaluation of Wood Pulp

SECOND REPORT OF THE PULP EVALUATION COMMITTEE TO THE TECHNICAL SECTION—PAPER MAKERS' ASSOCIATION OF GREAT BRITAIN AND IRELAND. Shell Mex House, Strand, London W. C. 2. July, 1936. 168 pp. Cloth Bound —Price 12/6., Half Leather 21/-. (The cloth bound copy is obtainable from the secretary of TAPPI, 122 East 42nd Street, New York, at $4.00)

The British Pulp Evaluation Committee is to be congratulated on another very fine report which is now timely in view of the number of minor improvements suggested for its equipment and procedure for forming and testing sheets. These also have been adopted as standard by the Canadian Technical Section and tentatively by TAPPI.

In Chapter I is a very complete and interesting historical survey of modern methods for evaluating pulp for strength which, with bibliography, occupies 52 pages.

Chapters II, III and IV set forth details of the revised equipment and methods, together with new experimental data justifying the suggested changes which, it should be noted, do not appreciably affect test results as obtained by the original apparatus and methods. The cylinder of the sheet machine is now provided with a hinged cylinder and clamp, and the grid plate is redesigned to give a more easily cleaned wire which is now affixed without the use of solder. However, the elaborate new equipment illustrated and described for dealing with the massive cast iron lid of the press, is reminiscent of the tackle necessary for raising the 10,000-lb. concrete block, mentioned in Chapter I, which was employed to press the test sheets in the original (1916) TAPPI method. The U. S. and Canadian manufacturers of the apparatus, not being so histrocially minded, provide instead, a light aluminum lid.

Chapters V and VI are concerned with the determinations of the drainage time, the drainage factor, and the Canadian standard freeness test. The recommendations in Chapter V concerning the undoubted advantages of the drainage time over the freeness test are somewhat contradictory to a suggestion for the use of the Schopper-Riegler in a late Chapter. It is unfortunate that the author of Chapter V, in his quest for academic accuracy, has very largely overlooked the practical merit of Campbell's suggested drainage factor, which as far as is known, is the only satisfactory method for determining the freeness of even such a very free pulp as unbeaten kraft; also having a range extending to the slowest of paper stocks.

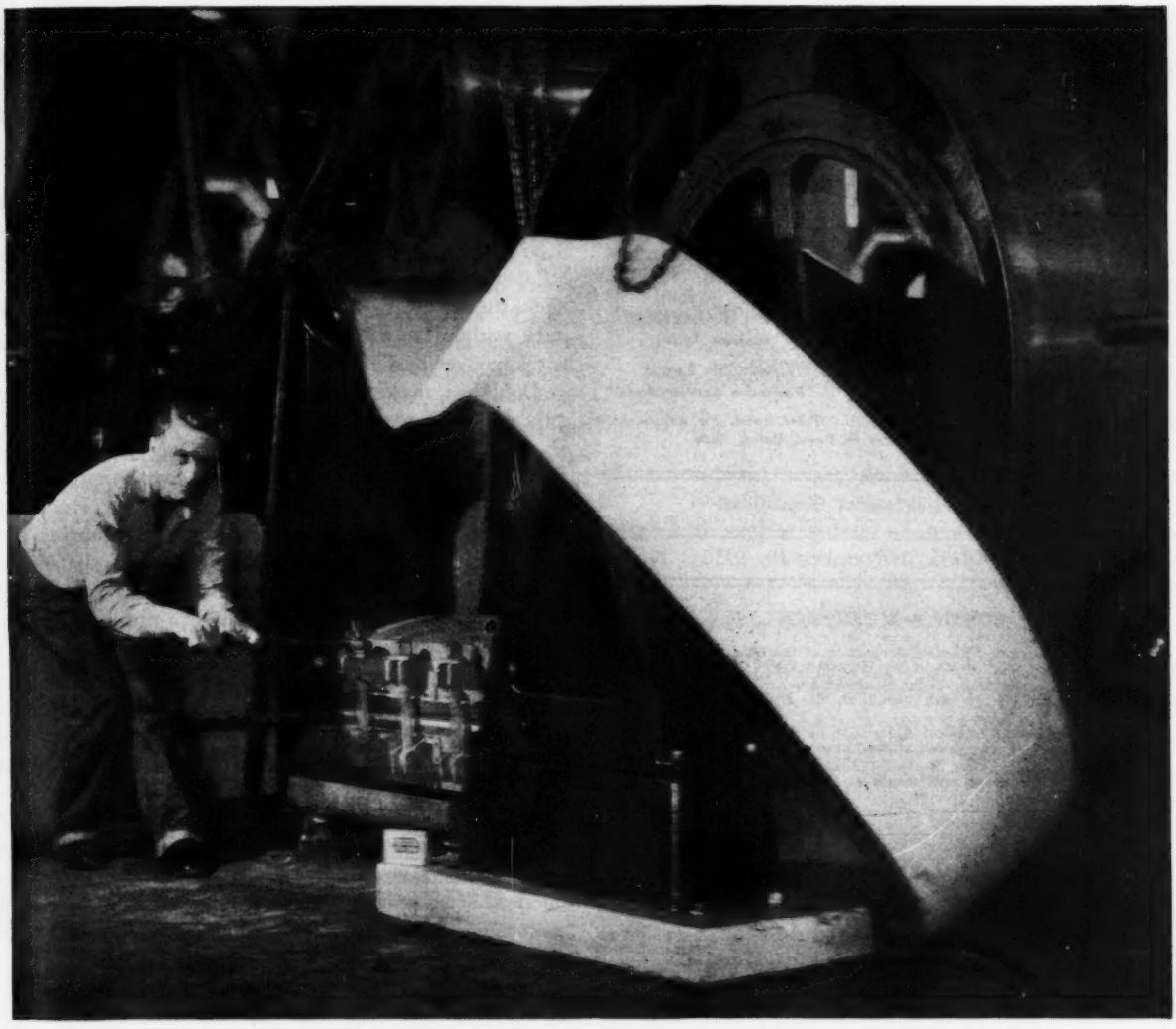
Chapter VII contains a welcome contribution to the rapid drying and conditioning of test sheets with valuable experimental data which should remove any criticism regarding the speed with which the standard method may be carried out.

Chapter VIII describes a useful apparatus and method for determining the consistency of pulp suspensions to a very high degree of accuracy.

Chapter IX deals with the determination of the shive content of pulp, suggesting for the purpose the employment of a laboratory screen with 0.15 mm. (0.038 in.) wide slots.

The final Chapter, X, describes a method using the 10 kg. Lampen single ball mill for beating pulp prior to forming test sheets. It is stated that this equipment was selected after a study of the multiple ball or pebble mill, a single rod mill, the miniature beater, the Jokro mill and larger and smaller Lampen mills. Before final recommendations are made, however, the Clark kollergang and the Aylesford refiner (similar to the independently developed Morden refiner) are to be studied, in the hope of finding a more satisfactory apparatus.

The book is unusually well printed with many excellent illustrations and graphs, and has a very complete index. The report, like Volume I, is unquestionably a model of its kind and should find a place in the library of everyone who is interested in the subject.



HE MAKES THE BELT SWALLOW ITS TAIL

A typical example of Goodrich improvement in rubber

FOR 40 years manufacturers tried to find a better way to make rubber belts endless.

Splices, vulcanized like tire repairs, would hold for a short time, then begin to open up at the seams. Plan after plan was tried, each plan designed to make splices *stronger and stronger.* Joints were made which seemed stronger than any other part of the belt! Still they failed.

One day Goodrich belt men decided that strength alone wasn't the answer. The outside belt plies must stand quick stretching and relaxing millions of times. Belts travel so fast that air resistance is important. These men decided they must protect those outer seams at any cost. So they reversed the usual engineering procedure, designed a splice in which a small section of an inner ply is removed, the outside ply carried under the surface at the seam, and covered with elastic breaker fabric.

Belts with this new splice lasted sometimes twice as long, sometimes ten times as long as the old belts. Users constantly tell us of serious belting problems which have been completely solved.

Goodrich is always busy with development work on rubber products. Much of it applies to new products, new uses—but no product is too "staple" or too *standardized* to get its share of this work. Goodrich improvements in rubber extend to conveyor belts, rubber-lined pipe, steam hose, suction hose—hundreds of other things classed generally as mechanical rubber goods. The B. F. Goodrich Company, Mechanical Rubber Goods Division, Akron, Ohio.

Goodrich

ALL *products problems* IN RUBBER

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FUTURE MEETINGS

NEW ENGLAND SECTION, Technical Association ot the Pulp and Paper Industry—Third Friday of each month at the Nonotuck Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION, Technical Association of the Pulp and Paper Industry—Fourth Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION, Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway, Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION, Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park-American Hotel, Kalamazoo, Mich.

PAPERMAKING IN SOUTHERN SIAM

For the student of paper making in all its phases as well as the collector of "paperiana," the latest Dard Hunter book of his authorship and his own printing, "Paper Making in Southern Siam" will have a special and absorbing interest, according to Mr. Harrison Elliott, himself a wide student of paper making.

While more limited in text than his former works, it is an intensive study and observation of a phase of paper making which has since ceased to exist. It is the only chronicle ever attempted of this particular "mill." The sub-title reads: "An Account of a Visitation with the Tym Niltongkum Family at Bangsom, the Last Remnant of the Old Handmade Papermakers of Southern Siam."

It is to be regretted that the edition is so limited that it was entirely subscribed on publication. Mr. Hunter's comment on the necessity for so limiting the edition is as follows: "Due to my strong aversion to the monotony of presswork only 115 copies of this book have been made." That is a terse statement, part of the colophon of his book. But one who has seen him laboriously busy at setting his text by hand and also operating his handpress with careful and painstaking effort and beautiful results can appreciate his attitude toward his work.

In his prefatory remarks in which he deals with his rough travel to this far-off mill, Mr. Hunter states that he has little fondness for normal travel, nor is he to be regarded as a normal person. One would say that "unique" is the term for him. One has but to visit his home in Chillicothe, Ohio, to be convinced of this. Mr. Hunter not only brings home graphic and photographic pictures of the work in remote papermaking districts, but impedimenta in the shape of hand implements and raw and finished material.

The aftermath of one of his papermaking pilgrimages is constantly arriving at his home by mail and express. The arrival of the mail at the Mountain House is an event. "Paperiana" from all over the world comes in a steady flow, there may be a light mail of just a few excessively rare pamphlets or huge and bulky packages which tax his already over-burdened storage facilities.

Doubtless many of the readers of this journal would prefer to visit paper mills nearer by where one may stand in awe of a machine that reels off a web of paper twenty feet wide at the rate of 1500 feet per minute. Picturesqueness is all a point of view. But with Mr. Hunter this visit to Southern Siam was a sentimental journey however much were the discomforts of travel and the inhospitality of a temperature which stood at 120 degrees while pictures were being taken and primitive operations witnessed.

The text is presented in an interesting style with an intimacy of detail that can only be obtained by first-hand contact and a willingness on the part of the operatives to show their methods. The willingness was best exemplified by the eighty-year-old mother who in her zeal to show the entire process of this primitive form of paper making could not remain still long enough to permit a satisfactory picture to be taken. The illustrations in the book, reproductions from photographs, are of the aged father and the two young daughters who seem to have had more poise than the ambitious mother.

It may be recalled that Nicolas Louis Robert in his invention of the paper-making machine was encouraged by a French paper mill owner who sought to overcome labor difficulties and to be independent of temperamental vatmen in the operation of his plant. The operation of this Siamese "mill" was entirely a family affair, as much of the hand made industry is in the remote paper making districts in the Orient. Probably the happier the family life, the better the paper produced.

The mould used in making this crude Siamese paper turns out a sheet 16 x 60 inches. Instead of dipping the mould in a vat of pulp as is usually done, the mould is floated on the surface of a stream and the pulp is poured into the mould and spread evenly over the cloth screen while the mould is slightly submerged to aid in an even distribution of the pulp. The mould is carefully taken from the stream with the water draining through and the process of drying the pulp is effected by placing the mould in an upright position in the sun, however, not until the pulp in the mould has been subjected to a rolling with a small, round stick which imparts a certain degree of surface finish. The side of the sheet in contact with the cloth screen retains the impression of the weave of the cloth.

In the book are six specimens of the paper thus pro-

duced. Also fourteen reproductions of photographs of the operations and one of the living quarters of this interesting family. An unusual insert is a piece of *Khoi* bark from which the paper is made and a piece of the cloth which serves as the screen in the mould.

By the way of contrast with the lavish entertainment frequently given to large groups of visitors to our own paper mills, let us contrast the reception accorded Mr. Hunter as related in his book:

"At intervals during our sojourn my venerable hostess would cease her work for an instant, and with astonishing vigour she would break coconuts and pour the half-warm milk into an earthen bowl, which had been cooling in the stream, for me to drink. She was content only when busily engaged in some operation of making paper so that I might see every detail of the entire process, or when performing some act of hospitality to make my sojourn comfortable and agreeable. Even though this shrivelled old woman was as primitive as a native of the jungle, and had never been any distance from her own little estate bordered by the muddy canals of Bangsom, she possessed a graciousness and charm of manner that would befit one of much higher birth and calling. Over a period of many years I have visited and lived with various so-called uncivilized people, and always have been delighted with their kindly manners, their humility, and their lack of pretension."

Champion Shows $1,163,245 Net

Champion Paper and Fibre Company and subsidiaries in its report for 12 months ended August 18, 1936, subject to annual audit and year-end adjustments, show consolidated net income of $1,163,245 after depreciation, depletion, amortization, federal income taxes and other charges, but before any provision for federal surtax on undistributed profits and before deduction of minority interest in income of the Champion Fibre Company represented by dividends on its preferred stock. Based on capitalization outstanding at close of the period the above net income is equivalent after allowing for 12 months' dividend requirements on 77,500 shares of 6 per cent preferred stock, to $1.27 a share on 551,000 no-par shares of common stock.

Consolidated income account for 12 months ended August 18, 1936 subject to annual audit and year-end adjustments, follows: Gross sales, less returns and allowances, etc., $20,665,701; cost of goods sold $15,392,163; gross profit from sales $5,273,538; net profit from miscellaneous operations $24,145; total gross profit $5,297,683; selling, general and administrative expenses, etc., $1,206,490; maintenance and repairs $920,663; depreciation, depletion and amortization $882,072; ordinary taxes $271,275; rents and royalties $30,119; profit from operations $1,987,064; other income $190,946; gross income $2,178,010; cash discounts on sales, etc., $460,067; interest, amortization, etc., $314,507; provision for federal and state income taxes $247,291; net income for 52 weeks ended August 16, 1936, $1,156,145; net income for two days ended August 18, 1936 (estimate based on operations for the four weeks ended September 13, 1936) $7,100; net income, before deduction of minority interest in income of Champion Fibre Company represented by dividends on its preferred stock, $1,163,245.

Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES

Months	1936	1935	1934
January	76.1%	65.8%	.....
February	77.9%	70.0%	.....
March	76.0%	70.5%	.....
April	82.3%	70.0%	.....
May	81.6%	69.4%	.....
June	80.7%	72.3%	.....
July (b)	80.0%	67.8%	.....
August	81.5%	70.9%	.....
September (c)	84.0%	75.0%	59.4%
October	87.5%	75.6%	64.7%
November	.....	75.3%	61.7%
December (a)	.....	74.3%	62.1%
Year		71.2%	

COMPARATIVE WEEKLY SUMMARIES

CURRENT WEEKS, 1936		CORRESPONDING WEEKS, 1935	
*October 3	85.3%	October 5	75.2%
*October 10	87.2%	October 12	76.3%
*October 17	87.6%	October 19	74.8%
*October 24	87.9%	October 26	76.4%
*October 31	89.4%	November 2	75.4%
*November 7	87.5%	November 9	75.5%

The following statistics show the number of mills reporting by ratio groups:

Ratio Limits	Number of Mills Reporting, Current Weeks: Oct. 3, 1936	Oct. 10, 1936	Oct. 17, 1936	Oct. 24, 1936	Oct. 31, 1936	Nov. 7, 1936
0% to 50%	71	53	58	50	50	37
51% to 100%	261	276	271	276	264	174
Total Mills Reporting	332	329	329	326	314	211

* Subject to revision until all reports are received.
These data exclude (a)—Christmas Day, (b)—Fourth of July, (c) Labor Day.

PAPERBOARD OPERATING RATIOS

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours," were as follows:

Months	1936	1935	1934	Months	1936	1935	1934
January	61%	61%	....	July	69%	59%	....
February	67%	67%	....	August	75%	65%	....
March	68%	67%	....	September	76%	69%	62%
April	70%	61%	....	October	....	76%	63%
May	68%	61%	....	November	70%	....	56%
June	68%	65%	....	December	60%	(a)53%	

Week ending October 3, 1936—80%
Week ending October 10, 1936—81%
Week ending October 17, 1936—81%
Week ending October 24, 1936—82%
Week ending October 31, 1936—84%
Week ending Nov. 7, 1936—79%

Hummel-Ross Declares Extra

Payable December 1 to stockholders of record November 20, the board of directors of the Hummel-Ross Fibre Corporation voted the payment of the regular quarterly dividend of 25 cents a share and an extra dividend of $1.00 per share. This makes total distribution of $2.75 per share on the 67,125 shares of $25.00 par common for the current year. The regular dividend of 6 per cent on the Preferred Stock payable December 15 was also declared.

Cash bonus equal to one week's salary to all employees with the corporation for one year, payable December 23, was also voted.

Union Bag Profits Up

The Union Bag and Paper Corporation reports for the twelve months ended September 30: Net profits, $246,307, equal to 94 cents each on 261,433 no-par capital shares outstanding, against $113, 257, or 77 cents each on 146,074 shares, for the twelve months ended September 30, 1935.

Great Northern Votes Extra

An extra dividend of 12 cents a common share has been declared by the Great Northern Paper Company, together with the regular quarterly disbursement of 25 cents, both payable December 1 to shares of record November 20.

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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Progress in Paper Filling*

By A. E. H. Fair[1]

In the past few years, a considerable amount of literature has been published, and many papers have been presented on the use of various fillers and loading materials. In most cases, these papers have been written to emphasize the merit of some particular type of filler, or a method of using this filler to best advantage. The information presented has undoubtedly been of value to the paper maker. On the other hand, some facts might be brought out in reviewing the subject which would assist the paper maker in choosing the most suitable filler for each particular purpose.

As you all know, there is a long list of fillers, both natural and synthetic, which have been used for many years. You are also familiar with the purpose of filling or loading papers, so it would not seem necessary nor advisable to spend time on this question.

The most interesting developments have taken place in the improvement and extension of the use of four main groups of fillers. These are

1. China clays
2. Titanium pigments
3. Zinc sulphide pigments
4. The carbonates.

For this reason, it has been very difficult to keep apace with improvements in practice, and to know without a series of mill experiments, which is the most suitable for a particular purpose.

Let us consider first the titanium and zinc pigments. These were brought into extensive use in the paper industry because of their exceptional properties, some of which are as follows: 1. Extreme brightness, 2. High refractive power (opacity) and 3. The property of retaining relatively high opacity after immersion in paraffin wax.

Unquestionably, the titanium and zinc pigments are valuable for the three above-mentioned properties. The fact that these pigments are used extensively and sell at a price many times that of other well-known fillers, is proof of their merit.

Only the distributors of zinc and titanium pigments could give figures on the amount used for each particular purpose. Generally speaking, their application in high-grade papers is made possible by the extreme brightness which they impart to the sheet. With this goes, of course, the usual increase in opacity, which is valuable in most cases. In such papers as high grade stationery, bristols, greeting card, and greaseproof, it is customary to add only very small quantities of titanium or zinc pigments. While opacity is generally desirable, the whiteness imparted enhances the value of the paper. In other words, the pigments serve really as coloring agents. I rather doubt whether this property is, generally speaking, sufficiently stressed in considering the merits of zinc and titanium pigments.

Due to the fact that filling in the true sense of the word is not usually desirable in such grades as those just mentioned, and because it is necessary to retain the strength of the sheet, low percentages of bright, highly refractive pigments have fitted into their manufacture to advantage. The titanium and zinc pigments have unquestionably established themselves in this field.

In considering the second property of these pigments, namely high refractive power, we must take into account relative values. This, in turn, involves comparison with other fillers, including blanc fixe, talc, and china clay.

The merits of titanium pigments and zinc pigments have been expounded rather fully. Papers on this subject have been presented by Willets, Crawford, and others. The writers have contributed some information which is valuable to the paper maker. Experiments have also been conducted to show the relative money value of these pigments. The information has been published in the trade journals. Up to the present, the data which has been made public, has shown little more than one thing, namely, you get just about what you pay for in opacifying value.

Due to the progress which has been made recently by the producers of clay, particularly in the domestic clay field, it is hard to state definitely how these fillers compare in opacifying value with the most expensive pigments. We can say, however, that the extensive use of titanium and zinc pigments has been a factor in encouraging the progress in the improvement of refining practices in the domestic clay field, which has, in turn, been responsible for the retention by the clay producers of business which might otherwise have been lost. These new clays have more uniform particle size, higher opacifying value, and much better color. They also impart a better finish to the paper.

The third and one of the best-known of the properties of zinc and titanium pigments, places them in a class by themselves. However, this property is of importance in only a limited class of papers. Titanium and zinc pigments used in either filling or coating of waxing papers, impart a permanent opacity. That is, the papers contain-

* Presented at the meeting of the New York-Canadian Division of the Superintendents Association, Niagara Falls, Ont., Oct. 24, 1936.
[1] Member TAPPI, Manager, Alliance Paper Mills, Ltd., Merriton, Ont.

ing these pigments either in the body of the sheet or on the surface, remain opaque and brilliant white in color after waxing. This whiteness provides contrast to colored inks, which improves printing results. It also improves the appearance of the package.

The use of calcium carbonate as a filler is not new. Its adoption has, however, been restricted considerably, due to its chemical properties. It is a well known fact that carbonates used in the beater in the usual manner not only affect sizing, but cause serious foaming conditions. The reaction which takes place forms a soluble salt, which readily dissolves. The result is extremely low retention of filler. Despite the high color of the carbonates and their ink receptive characteristics, their use has been restricted until recently.

It is also well known that processes have been developed to manufacture a superior form of carbonate filler at low cost, and methods have been devised to use carbonates with a reduction in sizing losses and foaming troubles.

Retention Variables

One problem which is common to the use of all these fillers is retention. The cost to the paper maker is dependent entirely upon how much he is able to retain in his paper. Some of the most important factors affecting retention of fillers are:

1. Fiber condition
2. Machine condition
3. Sheet weight
4. Per cent ash required in the sheet
5. Method of handling white waters
6. Characteristics of the fillers used
7. The chemical condition (pH)

We will deal briefly with each of these factors, as you all are probably aware of their relation to the retention of filler.

A well-beaten stock almost invariably will retain more filler, irrespective of the so-called "beating into" the fiber of the filler.

Under the heading of "machine conditions" might be included the amount of water used for formation, the length of the wire, the wire mesh, machine speed, amount of vacuum used, etc.

The sheet weight certainly affects the retention, and this factor suggested originally that we endeavor to use the partially formed sheet as a filtering means, to increase the retention of the filler.

It is well known that high percentages of filler are difficult to retain, even in heavyweight sheets. Very low percentages are frequently difficult to hold, due to the fact that the filler is highly diluted in the stock-filler-water mixture which is flowed onto the machine.

Of course, it is common knowledge that if the white water system can be closed completely, relatively good retention will result. There are, however, in most mills, objections to closing the system completely. It is hard to avoid the formation of slugs and slime if the system becomes overloaded with filler.

Characteristics of the fillers themselves have a great deal to do with the facility with which they are retained in the sheet. From a purely physical point of view, the particle size affects retention. It is claimed that some of the finer fillers can be more readily retained than those with a larger particle size, due to the tendency for the smaller particles to adhere to the fine fibers or fibrils. However, the larger particle size fillers should be more readily retained in the sheet, due to the relation between their size and the inter-fiber spaces.

Chemical properties of such fillers as carbonate, indirectly affect retention, due to the losses when reactions take place, such as that of alum on carbonate, which, as mentioned before, results in the formation of a soluble salt.

It has been pointed out, and has been proven in practice, that certain mechanisms influence greatly the retention of filler. Some of the most important of these are: 1. The trapping of the fillers by the filtering action of the fiber mat on the Fourdrinier; 2. The physical adhesion of the filler to the fiber or fibrils; 3. The chemical adhesion or attachment, probably filler, to the fiber or to other chemicals, which, in turn, tend to deposit on the fibers; 4. The actual intermingling or absorption of the filler into the fibers. It has never been proven that this takes place to any great extent.

Despite statements to the contrary, it can be shown that the greatest percentage of filler is held by the filtering action of the fibers during formation. The proof of this is that with a closed system, the first sheet taken from the reel on the startup, will have an ash content which figures out to a retention usually not more than 25 per cent. Sometimes on lightweight sheets, the initial retention will be as low as 18 per cent. It is because of the wide variation in retention, particularly at the startup and on short runs, that we were originally concerned in developing a means of levelling out the average ash in the sheet, and of providing a means of readily adjusting the filler to maintain a given percentage of ash. As a result, we devised a means of flowing a well-dispersed suspension of filler onto the Fourdrinier part during sheet formation.

C. B. Thorne Honored

C. B. Thorne was appointed Honorary Doctor by Die Technische Hochschule Darmstadt, on the centenary festival of this University. Mr. Thorne, the inventor of the Thorne Bleaching System and other machines used in the pulp and paper industry, and who today is vice-president of the Canadian International Paper Company of Hawkesbury, Ontario, was born in Norway. He started his studies in Norway, and at about nineteen years of age he came to Germany, where he studied for five years at German technical universities.

In 1903 he came to Canada, where he entered the pulp industry, which at that time was picking up fast. As early as 1913 Mr. Thorne worked on starting a completely new pulp mill in the virgin bush of Quebec, as it seemed to him that the geographical situation in the middle of the Canadian woods would be favorable.

In 1919-1920 the Kipawa Mill was started up. This gigantic pulp mill was laid out and built solely on C. B. Thorne's ideas, and he also planned the surrounding town, and takes a keen interest in all its social works. Kipawa produces today about 330 tons rayon pulp in 24 hours and in this line is known to be one of the most prominent mills in the world, if not the most prominent one.

Mr. Thorne has always been a passionate searcher and had a great desire for scientific penetration in the pulp industry. The bleaching of pulp he made his main study, and he was the first to introduce continuous bleaching in the pulp industry with his Thorne Bleaching Tower, which in later years by new improvements has become even more important.

Leipzig Trade Fair

The next Leipzig Trade Fair will be held from February 28 to March 8, inclusive, maintaining its unbroken record through seven centuries. The general pickup in world trade is shown by the 8,000 exhibits gathered from 26 of the leading producing countries, including the United States.

The News Penetration Tester*

By Joseph Hammond[1]

The news penetration tester is a new type of instrument for the determination of the sizing in paper. The instrument is in some respects an extension of the method followed in the flotation and dry indicator tests for size.

The diagrammatic sketch of Fig. 1 illustrates the function of the component parts of the instrument. This instrument is a simple, objective method of measuring quantitatively the penetration of any medium into paper. Observations are made with a dry disk, barrier layer photoelectric cell. These cells are extremely durable and stable, and their life as used in this instrument is indefinitely long. The cells are arranged in a balanced photoelectric circuit in order to eliminate the optical characteristics of the surface of the paper; such as, color, texture and surface irregularities. The operation of the instrument is based upon the change in reflectance of the surface of the sheet as the medium penetrates through from the under side. The sensitive surfaces of the annular photoelectric cells observe the respective surfaces of the white carried on the calibrating adjustment and the sample placed over the test aperture. The optical screen inserted into this balanced system decreases the illumination on the upper cell by a fixed amount; hence, balance is again reached only when an equal decrease in illumination on the lower cell has resulted from the penetration of the medium through the sheet.

The procedure followed in making the test is extremely simple. The sample is placed over the test aperture, and the photoelectric circuit balanced. The optical screen is inserted into the upper optical system and the ink is brought into contact with the paper. The time between the moment of contact of ink and paper, and the return of photoelectric balance, as shown by the meter, is the measure of the rate of penetration.

This instrument extends the value of present methods of measuring size: first, by employing as the penetrating medium the same type of ink that is used in printing and writing; again, by fixing precisely the end point of the test, converting a measurement which is now scarcely better than qualitative into one which has quantitative significance; and finally, by enabling independent measurement to be made of the surface and beater size of a sheet.

Figs. 2 to 7 show in detail the penetration with time of three media, water soluble ink, castor oil toned with nigrosine, and petroleum base printing ink for a variety of papers. The detail shown on these charts was obtained with the instrument by employing a sensitive, light beam galvanometer with which the penetration, as indicated by the decrease in reflectance, could be followed from initial penetration to saturation. These measurements are abridged in the customary use of the instrument by selecting a few fixed end points. The object in showing the detail of these sizing measurements is to demonstrate graphically the value of sizing determinations with the instrument.

Fig. 2 is a comparison of the water ink penetration of four papers. The top curve of this figure is a tablet paper, hard sized with rosin. The two lower curves are relatively slack sized book papers. The standard blue super book has two pronounced rates of penetration, an initial rate and an internal rate, whereas the Ryan M F book has a constant rate of penetration to saturation. The rate of penetration for the Ryan M F book is high, comparable to average newsprint. The penetration characteristics of these two book papers are amplified in Fig. 3. The characteristics for both felt and wire sides of both papers are shown in this figure. Three of these penetration characteristics show the initial and internal rates of penetration, while the wire side of Ryan M F book has a constant

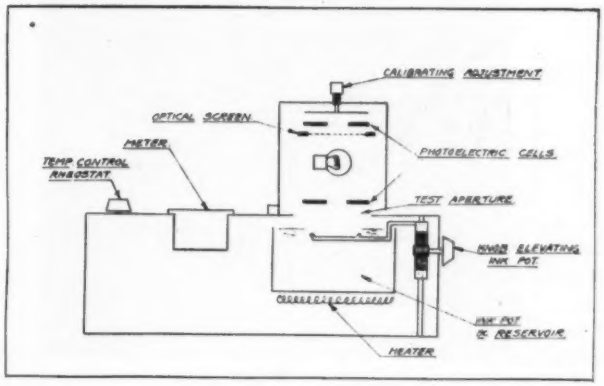
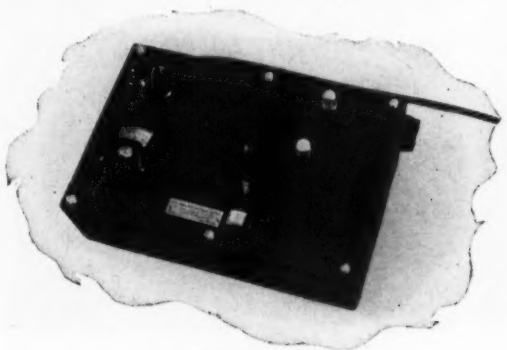


FIG. 1.

* Presented at the meeting of the New England Section of the Technical Association of the Pulp and Paper Industry, Holyoke, Mass., Sept. 25, 1936.

[1] Barss, Knobel and Young, Kendall Square Building, Cambridge, Mass.



NEWS PENETRATION TESTER.

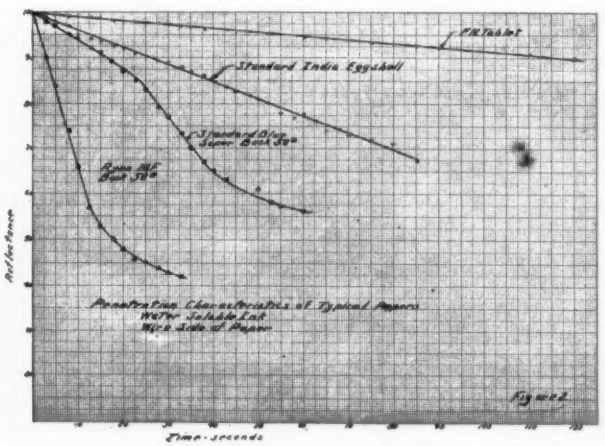


FIG. 2.

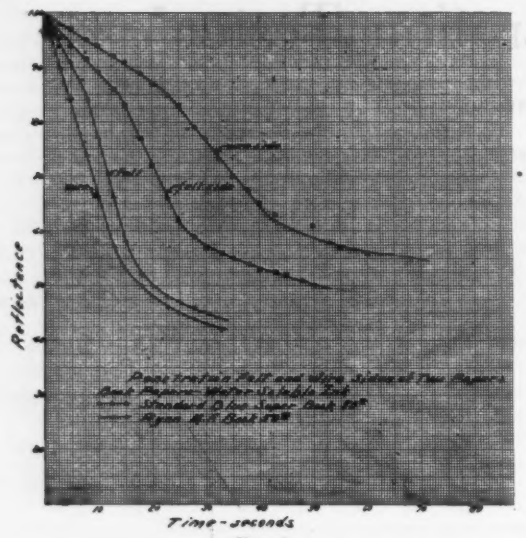


FIG. 3.

rate of penetration until saturation is reached. These papers contain only a rosin beater size. The two distinct rates of penetration are caused by peculiarities in the formation of the sheet, or to calendering. Calendering is probably the important factor in either raising contact angles or closing the capillaries so that the initial rate of penetration is slowed down. It is interesting to observe, too, that the wire side of particular runs of paper has a lower rate of penetration than the felt side. This is not the usual case, but it occasionally occurs.

The penetration characteristics of some typical papers to castor oil toned with nigrosine are shown in Fig. 4. Comparing Fig. 4 with Fig. 2 one notices that the F. N. tablet which is relatively hard sized to water is slack sized to castor oil. The fact that rosin size actually facilitates the penetration of oil inks was demonstrated several years ago by Reed. The calendering of the sheet which raised the contact angle for water soluble inks, and thereby decreased the rate of penetration, seems to lower the contact angle for castor oil, as evidenced by the slightly higher initial rate of penetration for all of the papers on this figure. The effect is most noticeable on the F. N. tablet.

Fig. 5 is, first, a comparison between three colored, coated papers labelled red, yellow and pink in the figure.

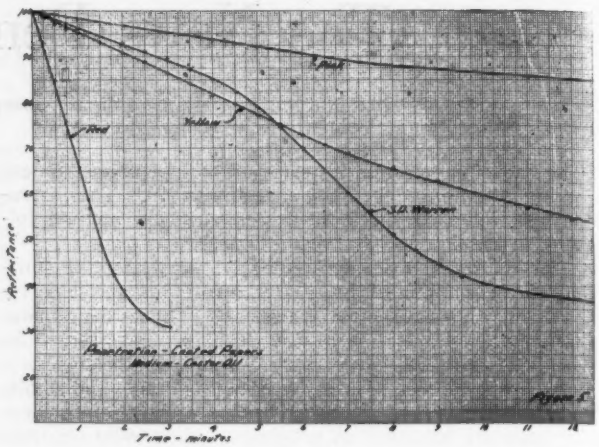


FIG. 5.

The coatings are of ground mica bound with casein. The papers are identical except in the amount of casein applied to the surface. Careful control of the casein size must be maintained on this type of paper in order to get a good printing surface and yet avoid having the coating pulled off by the printing roll. If the customary test for surface size is made on these papers observation of the tendency to feather with water soluble ink the red sample shows definite feather and the pink sample shows no feather; the yellow sample, however, when given this test by several experienced paper makers, might be thrown in one class or the other. It is obvious from the figure that there is no such difficulty in distinguishing the sizing on these papers when the test is made with the penetration tester.

The S. D. Warren sample is a white surface coated paper probably containing some filler. This paper, as would be expected, has two distinct rates of penetration.

Figs. 6 and 7 are a comparison of the penetration characteristics of several newsprint papers to New York Times printing ink and castor oil toned with nigrosine. The alum on the surface of these papers, or the surface finish, tends to inhibit the initial penetation for the petroleum base printing ink while it accelerates slightly the initial penetration for castor oil.

The analysis of the results which have been shown in the charts brings out some facts concerning the measurement of size by observation of the change in the optical properties of the sheet as the medium penetrates through:

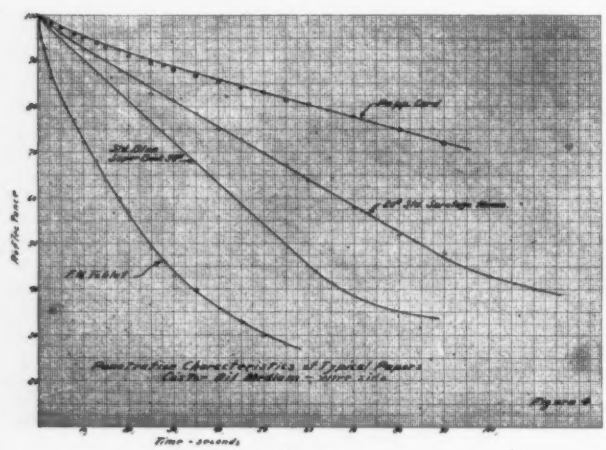


FIG. 4.

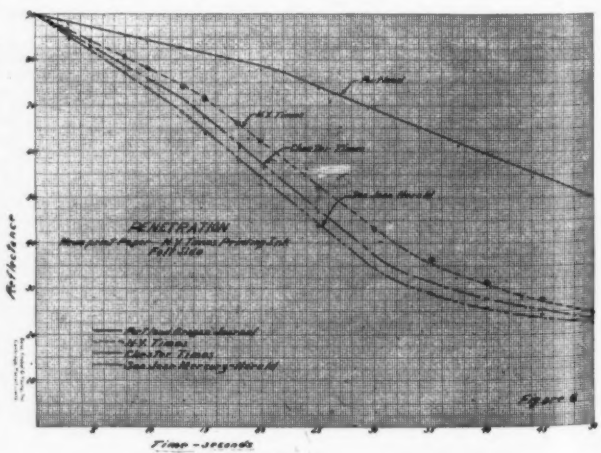


FIG. 6.

Few of the papers in which we are interested are opaque; they are more or less translucent; hence, when a penetrating medium is brought in contact with the sheet, the transmission as well as the absorption of incident light increases. This is especially true, of course, with oil inks. It is the fact that papers are translucent that permits the observation of the initial rate of penetration with this instrument. The instrument is calibrated before each test with the sample placed over an essentially optical black. This eliminates the total opacity of the paper from the measurement, and hence, permits sizing comparison to be drawn between papers of different opacity. This preliminary calibration also eliminates the optical characteristics of the surface of the sheet such as brightness, color and surface irregularities. Now, since the total illumination on any two samples, on which sizing comparisons are being made, is maintained constant, and the comparison is made for a fixed per cent change in reflectance, the per cent change in the absorption and transmission of incident light must be the same for the two samples. This can only occur when the penetrating medium has been absorbed the same distance into the capillaries of the two samples, provided they are of the same thickness. This relation might be written:

per cent change R = L — per cent change (A and T).

The light absorption and transmission are grouped in the bracket and it is evident that we are concerned only with their combined effect.

When sizing comparisons are made between samples of different thickness, the results must be qualified by the thickness. A pinhole in the area of test has little effect on the results for the reflection is integrated over a large area in which the pinhole is insignificant; and if we are to accept the capillary theory of absorption, the pinhole will fill up quickly, but the ink will not spread over the surface of the paper.

The penetration that is measured, whether it is the vehicle, vehicle and toner, or a composite rate of vehicle and toner where both penetrate the sheet but at different rates, depends entirely upon the ink. The test is completely dependent upon the medium, and sizing tests for different media can only be compared qualitatively. The importance of size, however, is its control of the penetration of a particular type of ink, and the relationship between this rate of penetration and the quality of the printing.

An analysis of the curves for papers having two rates of penetration, an initial and internal rate, brings up the question of whether this condition may be explained by considering that these papers are composed, across the

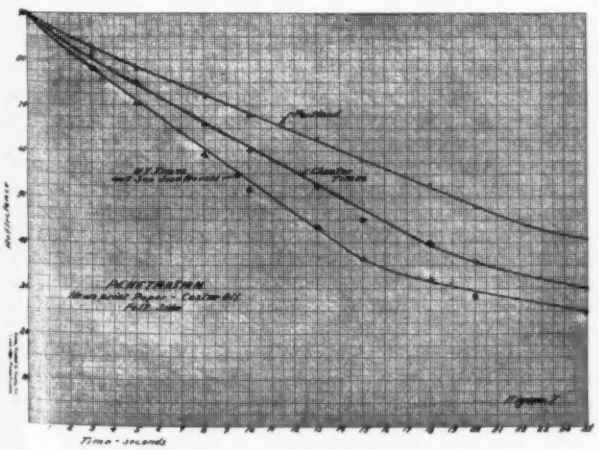


FIG. 7.

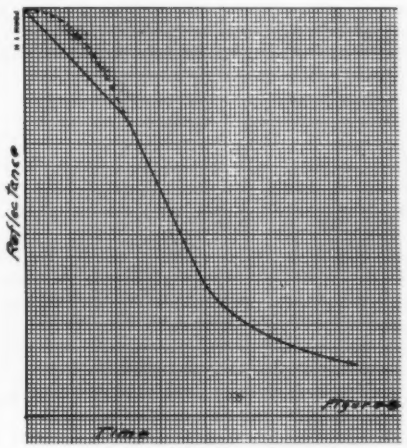


FIG. 8.

thickness, of laminations of differing opacity, rather than by the inhibition of initial penetration because of a surface condition due to calendering or size. If the phenomenon were due to variation in opacity through the thickness of the sheet, the penetration-time characteristics must have a drooping curve shown by the dotted line in Fig. 8, rather than two pronounced rates of penetration. The preponderance of proof lies, however, in the comparison of the penetration characteristics of the same papers for different media: the Standard Blue Super Book of Fig. 2 for water ink where there are two distinct rates of penetration, with its characteristic in Fig. 4 for a castor oil ink where the initial rate of penetration is, in fact, reversed; and the newsprint papers of Fig. 6 with the companion tests of Fig. 7. If the initial and internal rates of penetration were due to variations in opacity, we would have the same general type of penetration characteristic regardless of the medium; and since this is not the case, we must assume that the initial rate of penetration is due to the peculiar formation of the surface of the sheet, or to surface size which breaks down after a period of exposure to the penetrating medium, allowing the subsequent rate of penetration to be controlled by the interior sizing.

Broadbent, Brown and Harrison, in the May and June 1936 British Paper Trade Journal, reported in an article on the Carrier size tester that they had been able to distinguish between an initial and an internal rate of penetration. Their results, which tend to confirm the results which were obtained optically with the penetration tester, were made by measuring the electrical conductivity of the sample as distilled water penetrated through from one side.

Lake States TAPPI Discusses Glassine

The Lake States Section of the Technical Association of the Pulp and Paper Industry met at the Hotel Wausau, Wausau, Wis., on Tuesday evening, November 10, 1936. About ninety were present.

Ward Wheeler of Appleton, Wis. described the fundamental principles of supercalendering in the manufacture of glassine paper. He stated that more care is necessary in the selection of wood, in the cooking process, the speed of machines, the temperature and other conditions.

One of the transparency meters developed by the Institute of Paper Chemistry was demonstrated by D. B. Wicker of the Thilmany Pulp and Paper Company of Kaukauna, Wis. This device has been used in glassine paper mills with apparent success during the past two years.

Economies of Steam Storage

By J. W. Ogden[1]

Most of the articles written about Ruth's steam storage systems in paper mills during the past few years have been based upon rapidly fluctuating steam loads for which the accumulator is particularly adaptable. The basis of this article is the findings of a study made for a proposed paper mill in which the accumulator, although working under less favorable conditions, still shows that a paper mill equipped with an accumulator costs no more than a mill without one and that the use of an accumulator reduces the cost per ton of paper.

The study was based on the following conditions:

1. Boiler pressure—650 lb. gage.
2. Steam temperature—750 deg. F.
3. Digester capacity, 4 units—9 tons each.
4. Digester cooking pressure—100 lb.
5. Heating steam per digester—35,000 lb.
6. Digester peak steam demand—70,000 lb. per hour.
7. Digester schedule:

Heating	1 Hr. 0 Mins.
Cooking	1 Hr. 25 Mins.
Blowing	0 Hr. 20 Mins.
Filling	0 Hr. 15 Mins.
Total time	3 Hr. 0 Mins.

   7½ cooks per digester per 24 hour day.
8. Turbine capacity—12,000 kw.
9. Low pressure steam extraction—190,000 lb. per hr. at 35 lb. gage.
10. High pressure extraction—variable at 120 lb. gage.
11. Steam to condenser—variable—28 inches vacuum.

In order to make a comprehensive comparison between operation with an accumulator and without an accumulator the study was divided into two parts. All necessary curves and calculations were made for each part and then the two parts were compared both from the standpoint of economy and efficiency.

[1] Industrial Engineer, Foster Wheel Corp., New York, N. Y.

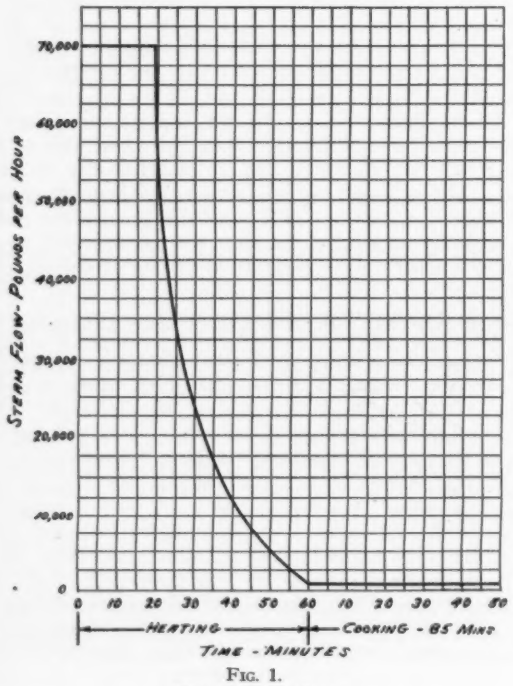


FIG. 1.
Digester steam flow.

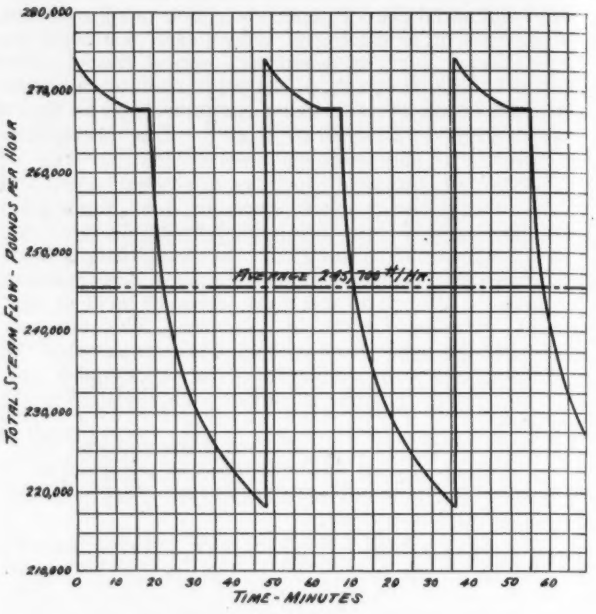


FIG. 2.
Total steam flow without accumulator.

Part 1—Operation Without an Accumulator

Fig. 1. was plotted to show the steam demand for an individual digester. When a freshly charged digester is put on the line the steam valve is usually opened wide and left open until the cooking period is finished. The peak of 70,000 lb. per hour is set at the capacity of the heating line which in this case is a 4 inch line. The peak demand will be constant for about 19 to 20 minutes as shown on the curve; then the pressure in the digester reaches the critical point and there is a sharp drop in the amount of steam consumed. The demand will then gradually fall off until the heating period is completed and from then on only enough steam to take care of radiation losses will be required.

Fig. 2 shows the calculated plant steam demand. This curve was plotted on the basis of generating a constant electrical load and furnishing a constant amount of steam at 35 lb. pressure to the paper machines. The 120-lb. pressure extraction steam, for heating the digesters, and the turbine exhaust to the condenser varied according to the digester demand. In actual operation, the 35-lb. steam would probably vary from 180,000 lb. per hour to 200,000 lb. per hour, and the peaks shown would be correspondingly higher, but for the purpose of this study the difference caused by assuming this quantity to be constant is negligible.

The average steam demand is found to be 245,700 lb. per hour, made up as follows: 120-lb. extraction steam 43,300 lb. per hour.; 35-lb. extraction steam 190,000 lb. per hour; exhaust steam 12,400 lb. per hour.

Fig. 3 shows the proposed flow diagram of the high pressure and extraction steam. An auxiliary high pressure

steam line directly from the boilers, through a reducing valve, to the digesters is shown. This will ordinarily be necessary because of the sudden fluctuations in the demand for digester heating steam. For example, when a cold digester is thrown on the line there is a sudden demand on the 120-lb. pressure extraction steam line to supply approximately 70,000 lb. per hour almost instantaneously. Without the auxiliary line there would be a definite loss of time before the turbine controls could adjust themselves to this sudden fluctuation. Any restriction in supplying heating steam will, of course, increase the cooking period and thus possibly decrease the plant production.

Part 2—Operation With an Accumulator

It is now proposed to install an accumulator in the system in order to eliminate the peak demands on the boilers and allow them to be operated at a constant rating.

The first thing which must be considered is that the fluctuations are caused by the digester steam and that in order to install an accumulator to flatten these fluctuations a higher extraction pressure will be required. The accumulator must operate on a differential in charging and discharging pressures and the larger this difference is the smaller and less expensive the accumulator will be.

Secondly, it must be recognized that the higher pressure extraction will necessarily mean an increase in the amount of throttle steam to the turbine in order to make up for the loss of power.

In order to arrive at an economical balance between the cost of the accumulator and the cost of supplying more throttle steam several extraction pressures were calculated and accumulators were estimated for each pressure. The most economical extraction point was found to be 200 lb. per sq. in. After determining this extraction pressure the curve, shown in Fig. 4, was calculated to determine the overall steam demand with the accumulator. The curve was plotted on the basis of furnishing the same electrical load as before. It will be noted that the peak is higher due to the increased throttle steam required.

The average operating point was determined to be 247,420 lb. per hour which will be the maximum operating point for the boilers. This is 1720 lb. per hour higher than the average operating point of the boilers without an accumulator.

Under these conditions the steam is distributed as follows: 200-lb. extraction—41,900 lb. per hour; 35-lb. extraction—190,000 lb. per hour; exhaust steam—15,520 lb. per hour.

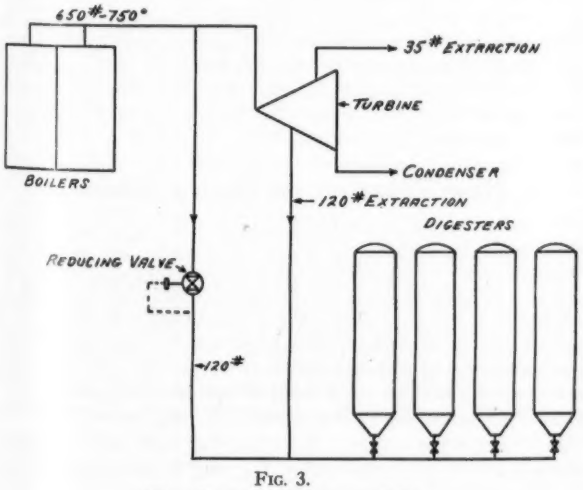


FIG. 3.
Flow diagram without accumulator.

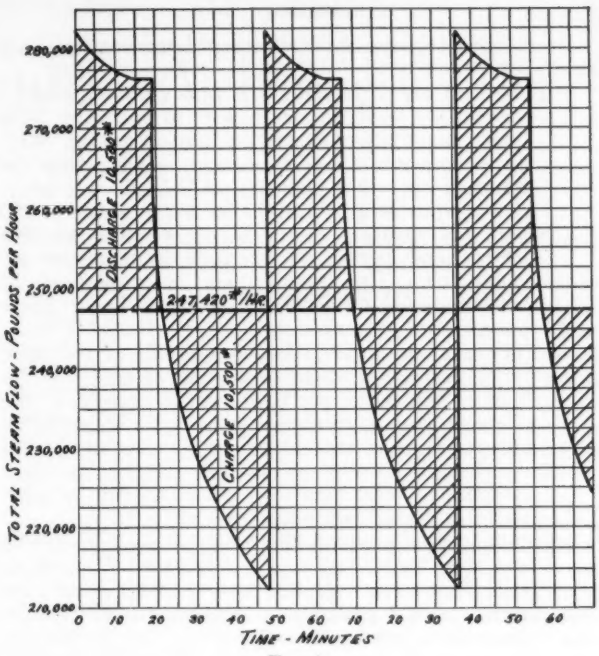


FIG. 4.
Total steam flow with accumulator.

The amount of steam to be extracted at 200 lb. pressure is less than the average formerly extracted at 120 lb. due to the fact that the higher pressure steam has a greater total heat.

For example, steam, expanded in the turbine from 650 lb. and 750 deg. F. to 200 lb. has a total heat of 1253 Btu. per pound. Steam expanded from the same initial pressure and temperature to 120 lb. has a total heat of 1210 Btu. per lb. Thus there is 43 Btu. per lb. more heat in the 200-lb. extraction.

The accumulator will store all of the heat supplied to it, so this increase in total heat content per pound of steam should be used in calculating the flow of steam required from the 200-lb. turbine extraction point.

The size of the accumulator was determined by the amount of steam which would have to be stored and discharged in order to keep the demand on the boilers constant. In this case it is seen that a total of 10,500 lb. will be required. This amount is charged to the accumulator at 200 lb. gage for about 27 minutes and discharged at 120 lb. in about 21 minutes. The accumulator will have a total storage volume of approximately 5,550 cubic feet.

Fig. 5 shows the proposed steam flow arrangement with an accumulator. Steam is extracted from the turbine at 200 lb. at a constant rate of 41,900 lb. per hour to supply the digesters. Valve V-2 reduces the pressure to 120 lb. When the digesters require less than 41,900 lb. per hour the excess steam is stored in the accumulator. When the demand exceeds this amount, valve V-1, to retain a constant flow from the boilers and the deficiency is supplied from the steam stored in the accumulator.

With this arrangement the boilers are operated at a constant rate and the figures shown give the constant amounts of steam supplied to the turbine and taken from the extraction points. It will also be noted that the auxiliary live steam line is no longer necessary since the accumulator will supply steam instantly.

Summary

From these figures the following determinations can be made:

(1) Without an accumulator the peak demand is 273,950 lb. per hour, the equivalent to operating 3650 boiler horse power at 250 per cent of rating. With an accumulator the peak demand, which is also the constant operating point, is 247,420 lb. per hour, this is equivalent to 3290 boiler horse power at 250 per cent rating. A net saving of 360 installed boiler horse power can be made by using an accumulator. This saving may be capitalized at $36,000 based on $100 per installed boiler horse power.

(2) The average steam load without an accumulator is 245,700 lb. per hour. With the accumulator the load is 247,420 lb. per hour. Thus there is a cost for supplying 1720 lb. per hour more steam to be charged against the accumulator. Assuming that the steam costs $0.23 per 1000 lb. and that the plant is operated 8000 hours per year this can be evaluated at $3160 per year.

(3) With an accumulator there will be no necessity of supplying live steam to the digesters. Without an accumulator the bypassing of live steam around the turbine would probably be necessary as the sudden demand caused by throwing a digester on the line may exceed the maximum which can be supplied safely from the extraction point. Assuming that the amount of bypassing required averaged 1000 lb. per hour, there would be a net credit of $1,840 per year due the accumulator.

(4) It is generally accepted that boilers which can be operated at a constant rating will show an improvement in overall efficiency. Assuming a 1 per cent saving in fuel can be made, which amounts to less than 1 per cent increase in boiler efficiency, there will be an additional credit of $5,740 for the accumulator.

(5) From the above figures an actual yearly saving in favor of the accumulator can be established as follows:

(a)	No accumulator:	
	Additional cost of boilers $36,000.	
	Fixed charges 15 per cent	$ 5,400
	Live steam to digesters	1,840
	Lower boiler efficiency	5,740
		$12,980
(b)	With accumulator:	
	Cost of accumulator $30,000.	
	Fixed charges 15 per cent	$ 4,500
	Additional throttle steam	3,160
		$7,660

Annual saving (a) minus (b) — $5,320.

(6) With the boilers operated at a constant load there is also the possibility of simplifying the combustion control and thus reducing the initial cost and maintenance of the boilers.

(7) The following may also be said in favor of the accumulator:

(a) Maximum production can be secured from the digesters because steam will be supplied as rapidly as required and there will be no lag in the heating and cooking time.

(b) An economic balance can be maintained between steam for power and process.

In designing a new mill it is very difficult to estimate the proper and most efficient balance between steam for process and power requirements. If this is not accurately determined it results in loss in overall efficiency in one of two ways: either by having steam go to the condenser when the power requirement for steam exceeds the process demand or by finding it necessary to by-pass the turbine and put the steam through a reducing valve when process demand exceeds the power requirement or maximum rate of extraction from the turbine. The accumulator provides a "fly wheel" effect to balance these two demands and to prevent inefficient operation.

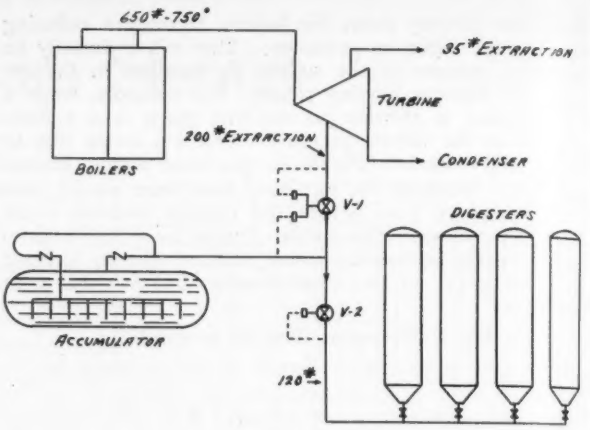


FIG. 5.
Flow diagram with accumulator.

(c) Since it is possible to maintain a constant boiler pressure with an accumulator the boilers can be operated closer to the blow-off pressures, improving the turbine efficiency. It is quite possible that this increase in efficiency may materially reduce the cost of extracting steam at the higher pressure.

From this analysis it is clear that an accumulator would be advantageous in a plant such as outlined, not only from an economic standpoint, but also from an operating standpoint.

RESULTS IN PAPER MILLS

The various savings and improved operation which this article credits to the use of an accumulator have been actually obtained by accumulators in paper mills in this country. One mill having modern boilers operating at 650-lb. gauge pressure and 750 deg. F. final steam temperature reported an improvement of 5.6 per cent in boiler efficiency due to the accumulator. Another mill reported a reduction of 50 cents in their cost per ton of paper. A Canadian mill made sufficient fuel savings, due to increased boiler efficiency, to pay for the accumulator in six months. A mill in northern New York state was able to increase their paper output 15.6 per cent due to the more uniform supply of steam.

New Research on Optical Glass

A broad program of fundamental investigations on the chemistry and physics of glass surfaces to aid in the development of scientific apparatus and ophthalmic instruments has been started at the Mellon Institute of Industrial Research by the Bausch & Lomb Optical Company, of Rochester, N. Y. The first studies will be concerned with the effects of environmental factors on the durability of the various types of glass used in optical instruments. Dr. Frank L. Jones, the fellow since 1931, will be in charge of the new investigations. An enlarged staff will continue the work on plant problems at the new research laboratory of the company in Rochester.

Titanium Pigments—A Review*

By William R. Willets[1]

Although the element titanium was discovered about 145 years ago by the Rev. William Gregor in a black sand near Cornwall, England, no use was investigated until about 1869 when J. W. Ryland of Birmingham, England reduced the crude ore to a fine powder, heated it to remove moisture and ground it with oil to produce a paint. This experiment, however, never had any real commercial significance. About 1885, it was found that titanium compounds could be used as mordants for textiles, but this had no practical application until the late 1890's when Spence, Barnes and others succeeded in purifying such compounds and extending their application. A few years later, Knecht suggested the use of titanous salts as stripping agents for textiles.

About the same period, chemists in this country and abroad were considering the effect of titanium on the smelting of iron, and methods for such use, depending on the action of ferro-carbon-titanium as a purifier and scavenger for steel, were worked out. Since that time many new uses for titanium in the metal industry, and many new alloys, have been developed.

As early as 1908, Rossi mixed an impure titanium dioxide with oil and applied it as a paint. In 1912, serious work (under the leadership of Rossi and Barton) was started with the view in mind of manufacturing opaque white pigments. The actual commercial production of titanium pigments, however, did not begin until 1918 and this date, recent as it was, may be considered as the actual start of the titanium pigment industry in this country. Naturally, European developments were progressing at the same time and much of the success of the industry may be attributed to the cooperation (still continuing) between chemists in the United States and Europe.

The application of titanium pigments to paper making is still more recent. The first reference to this appeared in the German literature in 1928 *(1)* and the first reference in this country in 1931 *(2)*, although prior to that time certain companies were experimenting with titanium pigments and in one or two cases had actually adopted the practice of pigmentation.

Developments in pigment manufacture have progressed rapidly; these have resulted not only in greatly improved products but in lowered costs as well. It is interesting to note that every change in the price of titanium pigments has been downwards, and pigments today are much cheaper than they were several years ago. (In 1921, an inferior titanium dioxide sold for $1.50 a pound and in 1925 this price was still 50 cents a pound; in 1921 the titanium-barium composite sold for 15 cents a pound and in 1925 the titanium-calcium composite sold for 12 cents a pound, prices far exceeding those at present.)

Such improvements and lowered prices have naturally resulted in greatly increased use, and while titanium pigments were originally developed for the paint and allied industries, their use has extended to a great many fields among which might be mentioned: rubber, leather, cosmetics, ink, ceramics, oil cloth, linoleum, rayon and paper, in which we are naturally most interested.

Pigment Manufacture

While different methods have been used for the manufacture of titanium pigments, and while such methods are continually undergoing modification and improvement, the following notes will give some idea of the processes involved although they cannot give any true conception of the complexity and details of the various operations, which represent real achievements in the fields of chemistry and engineering.

The basic raw material commonly used is ilmenite which is theoretically an iron titanate having the approximate formula FeOTiO2 or FeTiO3. This ore is found rather generally throughout the world with deposits of commercial significance in India, Africa, Brazil, Norway and the United States. Titanium is exceedingly common, forming about 0.58 per cent of known terrestial matter. It occurs in most igneous rocks and in virtually all of our domestic clays, although of course in relatively small amounts.

The ilmenite ore, ground and concentrated, is mixed with commercial sulfuric acid and stirred and heated until an exothermic reaction occurs. This reaction soon beomes violent and in a short time the titanium is converted to a soluble sulfate. After the completion of the reaction, a relatively dry mass containing both the iron and titanium sulfates remains; the soluble titanium and iron sulfates are leached from this dry mass with water. This solution is then clarified by means of a complicated series of sedimentation tanks and filters, in preparation for the precipitation of titanium hydrate by hydrolysis in the next step.

If a composite pigment is desired the correct proportion of precipitated blanc fixe (for the barium composite) or of calcium sulfate (for the calcium composite) is measured into the precipitation tank; if pure titanium dioxide is desired, no base is used. The mixture is heated and the titanium sulfate is hydrolysed to the titanium hydrate and (if a base has been used) precipitated and coalesced on the base.

The resulting pulp is pumped to large settling tanks where it is partially purified by sedimentation and washing. The thickened pulp is then passed through a series of filters where residual iron salts and other contaminating materials are removed.

When washing is completed the pulp is fed to a rotary oil-fired calciner where it is dried and finally brought to a high heat. This operation changes amorphous titanium hydrate to the crypto-crystalline titanium dioxide having a refractive index of about 2.6.

After calcination the pigment passes through various grinding and air floating operations. When these are completed the pigment is so fine that over 99.95 per cent will pass a 325 mesh sieve.

Pigment Characteristics

Probably the most important titanium pigment from a papermaking viewpoint is pure titanium dioxide (*Titanox-A*). This pigment has a refractive index of about 2.6, higher than that of any of the other white pigments. It is chemically inert, exceedingly fine, and free from grit.

* Presented at the Meeting of the Kalamazoo Section of the Technical Association of the Pulp and Paper Industry, Kalamazoo, Mich., Sept. 10, 1936, and at the Meeting of the Ohio Section of TAPPI, Middletown, Ohio, Oct. 17, 1936.

[1] Member TAPPI, Paper Development Laboratory, Titanium Pigment Corp., 105 York Street, Brooklyn, New York.

Up until now, the regular titanium-barium pigment (*Titanox-B*) consisted of 25 per cent of titanium dioxide precipitated on and coalesced with blanc fixe. Recently, however, there has become available a titanium-barium composite consisting of 30 per cent titanium dioxide similarly precipitated and coalesced on 70 per cent blanc fixe (*Titanox-B-30*). There is also available a third titanium-barium composite (*Titanox-B-17*) consisting of 17 per cent titanium dioxide and 83 per cent blanc fixe. What has been noted regarding chemical inertness, fineness, etc. for pure titanium dioxide applies equally well to these composites.

The titanium-calcium composite (*Titanox-C*) consists of 30 per cent titanium dioxide precipitated and coalesced on calcium sulfate. This pigment is also chemically stable but it should be noted that the calcium sulfate base is slightly soluble in water.

The outstanding characteristic of the titanium pigments is a hiding power greater than that of any of the fillers in common use. This hiding power results in the production of great opacity even when the pigments are used in only small amounts. It is possible to attain degrees of opacity by means of titanium pigments absolutely unattainable with any reasonable amounts of the older fillers.

In addition to their ability to produce opacity, resulting from their high refractive index, small particle size, etc. the pigments have exceptionally good brightness (approximately 95 per cent) and a high, neutral white color. These properties permit the manufacture of very white and bright paper. On the same basis, these pigments are frequently used in colored papers because clear tints, free from objectionable undertones and muddiness, can be readily produced.

The chemical stability of these pigments has already been mentioned. Because of this property there is absolutely no tendency for the pigments to react with any of the raw materials used in papermaking, or subsequent operations. Other outstanding characteristics of these pigments are their uniformity, fineness and freedom from grit. These impart excellent finish and printability to paper.

While various degrees of oil absorption are required for the paint and allied industries such properties have little bearing from a papermaking viewpoint. However, the titanium pigments being supplied to the paper industry have excellent dispersion in water, and in sizing and coating mixes, which is an important property.

In order that uniformity may be maintained and the various desirable characteristics developed to the fullest extent the entire manufacture of titanium pigments is subjected to the most rigorous control. Likewise the finished products are carefully tested. The usual tests are as follow: moisture, loss on ignition, chemical composition, comparison of color (including over-tone and under-tone), oil absorption, coarse particles, alkalinity or acidity, hiding power and tinting strength. Most of these tests follow those outlined in the ASTM Standards. In addition to such tests, additional work is done in the case of pigments for use in the paper industry to insure their suitability for such use.

Use In Paper Manufacture

The use of titanium pigments for improving the opacity, color and finish of paper has been discussed at considerable length in the technical literature of not only this Country, but of Europe as well *(3)*.

For this reason it might be interesting to consider just how important opacity, color and finish actually are. It is always difficult to rate the relative importance of various sheet characteristics but fortunately a very good digest has already been presented (at the Annual Meeting of TAPPI in 1934) giving a summary of the significant sheet properties to be considered in developing specifications *(4)*. From the data of this article it will be noted that for print papers, out of a total of 36 characteristics considered, opacity received a rating of 4, color of 2 and finish of 1; for writing papers out of a total of 34 characteristics, opacity rated 12, color 3 and finish 1; for tissue papers out of a total of 26 characteristics, opacity rated 16, color 4 and finish 1; for paperboards, out of a total of 42 characteristics, opacity rated 40, color 4 and finish 2; and for cardboards, out of 27 characteristics, opacity rated 17, color 3 and finish 1. These figures represent ratings for the gross classes, in certain sub-classes these three characteristics were rated much higher.

It is evident, therefore, that those characteristics which may be directly benefitted by the use of titanium pigments are definitely very important and worthy of the utmost consideration. That such consideration has been, and is continually being given to these properties is evidenced by the rapid growth in the use of titanium pigments in the paper industry.

To date, the most common method of using titanium pigments has been as beater fillers, and this method continues to be satisfactory where a mill has a well closed white water system, and so can insure good retention, which naturally is dependent on a great many factors, varying from mill to mill. Even with optimum conditions, however, a certain amount of pigment will always be lost.

For this reason many methods have been developed for the surface application of pigments on the Fourdrinier machine *(5)*. Such methods result not only in more efficient filler utilization but also in many cases give a product having the desirable printing qualities of a coated paper. Likewise, pigments are being used in conjunction with starch and other adhesives in the size tub, on the calender stacks, etc.; in such cases the beneficial action of the surface size is fully maintained but the paper is opacified, brightened and whitened at the same time.

The use of titanium pigments in paper manufacture is becoming very common, in fact, it is not too much to say that there are very few types of paper in which they have not been used. Instead of being a curiosity, as was the case until recently, titanium pigments are now forming one of the important raw materials of papermaking.

Their use in book, and similar papers, is increasing rapidly as publishers and printers are becoming more and more aware of the advantages (increased opacity and brightness, better color, decreased show-through, better finish, etc.) of paper pigmented with titanium pigments. In many cases, it has been found possible to decrease the weight of catalog and magazine papers by suitable pigmentation in the beater, or by one of the many methods of surface application. This reduction in the weight of the paper results in lower mailing costs. At the same time such paper usually has better color, opacity, etc. than the heavier unpigmented paper previously used. While it is natural that printers and publishers should resent paying a trifle more for their paper, it can be shown that the use of a lighter weight paper, in which opacity, etc. is obtained by means of titanium pigments, will often be cheaper when the ream cost is considered, than when a heavier weight paper is used. As a matter of fact, in any publishing operation, the cost of the paper is only a rather minor part of the total, and the slight additional cost of using pigmented paper will be offset by the increased advertising value of such a sheet.

Generally speaking, envelope papers have been rather deficient in the highly necessary quality of opacity. In the

past, attempts have been made to overcome this lack of opacity by the use of high proportions of soda pulp, large amounts of common fillers such as clay, talc, etc., and less beating with resultant lower hydration. All these expedients tend to reduce the strength of the paper, and this deficiency in strength frequently results in trouble, not only during the envelope manufacturing process but in the use of the envelopes as well. However, by means of titanium pigments, envelope paper can be made opaque without the loss of desirable strength. For this reason, certain consumers are establishing requirements for their envelopes in which strength, opacity, ash content, etc. are all specified; the properties desired can best be obtained by the use of titanium pigments.

The use of titanium pigments in bond papers is likewise definitely on the increase and many companies have brought out lines of opacified bonds, mimeograph papers, etc. which are meeting with wide approval from the trade. This contradicts the occasional argument that opacity in bond papers is not essential, since they are usually only written or typed on one side. The advertising value of a bright, white and opaque letterhead cannot be denied. In addition to this, many brochures, financial reports, record forms, trade announcements, etc. are printed on bond paper on both sides, and in such cases good opacity and lack of show-through are of the utmost importance. Here again, certain large paper consumers are definitely specifying opacity, strength, ash, etc. requirements which, in most cases, can only be met by the use of titanium pigments.

The demand for opaque tissues is likewise on the increase, and such paper can best be made by the use of titanium pigments, and more especially by the use of titanium dioxide which gives the highest opacity with the lowest ash content and consequently with the least effect on strength.

A comparatively recent development is the use of titanium pigments in lined boards, which results in greatly improved color and brightness because the off-color middle of the board does not show through the liner and dull its appearance. Pigmented lined boards are being used for boxes of various kinds, bottle caps, fiber cans, food cartons, show cards, picnic plates, pie plates, etc.

Titanium pigments are being used for coating paper and board because of their high covering power, brightness, whiteness and fineness, and because of their ready adaptability to coating mixes. By the proper pigmentation of the coating color, it is possible to make light weight coated paper having high opacity and little show-through. Such papers are finding considerable use, especially in the advertising fields.

Titanium pigments are frequently used to improve the color and brightness of bleached and semi-bleached kraft stocks and to lighten the color of unbleached sulphite. Many mills keep supplies of titanium pigments on hand so that they can correct the appearance of off-colored stocks and maintain a definite standard of whiteness, brightness and opacity. During the muddy water period, resulting from spring floods, many mills use titanium pigments to mask the bad color resulting from such dirty water.

There are, in addition to the above, other specialized applications where titanium pigments are being used, but the summary given is sufficient to show the wide diversity of application. As recently as five or six years ago, the foregoing discussion regarding the applications of titanium pigments might have been considered as a description of "suggested uses," but now these suggested uses have become actual, commercial and common practice. The demand for paper having properties attainable through the use of titanium pigments has already been mentioned; such demand is continually on the increase and is evidence of the growing appreciation of these products by the consumer. Since the distributor and consumer are steadily becoming more familiar with the advantages of pigmented papers, it is not too much to expect that this demand will increase at an even more rapid rate.

Literature Cited

(1) Anon Titanium White in the Coated Paper Industry, *Papier-Zeit.* 53, No. 97:3106 (1928).
(2) Anon. Suggested Uses of a New Product, *Paper Industry* 12, No. 11:1832 (February, 1931).
(3) Willets, W. R. Titanium Pigments in Paper Making, Paper Trade Journal 102, No. 19:33-35 (May 7, 1936).
(4) Baird, P. K., Significant Sheet Properties for Developing Specifications for Various Papers and Paperboards. *Paper Trade J.* 98, No. 2: 40-46 (January 11, 1934). *Tech. Assoc. Papers* 17: 253-259 (1934).
(5) Hunter E., Surface Treatment of Paper on the Fourdrinier Machine, *Paper Trade J.* 102, No. 26: 42-48 (June 25, 1936). *Tech. Asso. Papers* 19: 313-319 (1936).

J. M. Avery Joins Little Staff

Julian M. Avery, electro-chemical and metallurgical engineer, formerly with Union Carbide and Carbon Corporation, has joined the staff of Arthur D. Little, Inc., research chemists and engineers of Cambridge, Mass.

Mr. Avery is a graduate of Massachusetts Institute of Technology, class of 1918, and obtained his first practical plant experience as a Lieutenant in the Chemical Warfare Service under the late Colonel William H. Walker, who was one of the early partners of Dr. Arthur D. Little.

Mr. Avery brings to Arthur D. Little, Inc., a wealth of experience in practical plant operation, research developments, patent work and the investigation and evaluation of inventions and processes, acquired both in the United States and in Europe while serving various subsidiaries of Union Carbide and Carbon Corporation.

Mr. Avery is a member of the Electro Chemical Society and the American Institute of Mining and Metallurgical Engineers.

The Largest Watermark in the World

Jos. J. Plank & Co. of Appleton, Wis., recently made the dandy roll for what is claimed to be the largest one-design watermark ever made in the history of paper making. This watermark depicts a duck hunting scene and the sheet measures 31½ by 22 inches.

After sketching the picture, it was reproduced in small pieces of copper wire from which a die was made the full size of the design. From this die, the impression was hand-tooled into the wire screen covering of the dandy roll. It is a machine-made sheet of paper.

New England TAPPI to Meet

The New England Section of the Technical Association of the Pulp and Paper Industry will meet at the Nonotuck Hotel, Holyoke, Mass. on Friday evening, November 20, at 6:30 p. m.

The speaker will be Dr. J. J. Willaman, Research Director of Rohm & Haas, Bristol, Pa., who will discuss "Enzymes in Industry." This meeting will be open to all who may be interested.

Prairie State Announces Wage Increase

The Prairie State Paper Mills, of Joliet, Ill., has notified its employees of a 10 per cent wage increase retroactive to November 1. The raise will affect the 85 employees of this company, and is given in recognition of the fact that living costs have advanced.

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Cellulose

Cellulose. El papelero 1, No. 3:27-32; No. 4:23, 25-31 (March, April, 1936). — A General article is presented dealing with the different aspects of cellulose, such as its chemical composition, solvents, the action of alkalis, acids and bacteria, artificial silk, lignicellulose, the physical structure, chemical analyses for fiber identification, etc.—C. J. W.

Chemical Reactions Taking Place During the Solution of Cellulose in Schweitzer's Reagent. W. Traube and A. Funk, Ber. 69B, no. 6: 1476-1483 (June 10, 1936). —On dissolving cellulose in Schweitzer's reagent, a cellulose anion containing copper is obtained, which is capable of forming salts such as $[C_{12}H_6O_{10}Cu]\cdot[Cu(NH_3)_4]$; the valence of the anion, however, may vary from one to two. The copper in the anion is more firmly bound than that of the tetrammine complex, which can be replaced by other cations, such as alkali, Ba, Sr, Ca, and Tl by double decomposition with the respective salt solutions. The Ba, Na and Tl salts of cupricellulose were prepared in this manner.—C. J. W.

Molecular Structure of Cellulose. G. F. Davidson. J Textile Inst. 27, no. 7:P144-168 (July, 1936); Silk and Rayon 10, no. 7:546, 548 (July, 1936).—The article is an excellent review of the subject. In the first part, current theories are discussed; the second part deals with the characteristics of chemically modified cotton celluloses. Bibliographies of 95 and 13 references, respectively are included.—C. J. W.

The Action of Metallic Sodium on Cellulose. Paul Schoringin and N. N. Makarowa-Semljanskaja. Ber. 69B, no. 7:1713-1721 (July 8, 1936).—Sodium in liquid ammonia reacts with cellulose to form a tri-sodium derivative, $C_6H_7O_2(ONa)_3$ and liberation of three hydrogen atoms. The compound is unstable; on addition of alcohol, sodium is split off and finally an alkali cellulose is obtained, the composition of which lies between $C_6H_9O_4ONa$ and $C_6H_{10}O_5\cdot C_6H_9O_4ONa$. On xanthation, a cellulose exanthate results whose sulphur content is considerably lower than that of the cellulose xanthate prepared in the usual manner. Methylation of the sodium derivative gives a monomethyl cellulose.—C. J. W.

Studies on the acid Property of Cellulose and the Problem of the Oxidation Processes on Membrane Sub stances. Max Lüdtke. Biochem. Z. 285:78-97 (1936); C. A. 30:4665.—The study of the acid capacity of celluloses leads to the conclusion that the acid groups are not a natural component of the cellulose molecule nor do they originate from the oxidation of certain groupings in the cellulose molecule but rather belong to some admixtures or their split products. The acid number is therefore, not a method of determining the length of the cellulose chain. However, the acid number is very useful as a means for following the oxidation process, and serves to characterize cell-wall material.—C. J. W.

Swelling Phenomena in the Treatment of Cellulose With Alkalies and Acids, and Influence of Oxygen on Cellulose Xanthate. A Lottermoser and Friedrich Schwartz. Kolloid-Beihefte 42; 408-428 (1935); C. A. 30:4665.—When acid or alkali containing swelled cellulose is diluted, the fiber absorbs water selectively to an extent depending on the original concentration. When the sodium hydroxide is gradually increased, cellulose absorbs water selectively at first and swells, but at higher sodium hydroxide this process is reversed. Cellulose xanthate solution rapidly absorbs oxygen, which oxidizes degradation products; the cellulose molecule is scarcely oxidized in the process.—C. J. W.

Behavior of Cellulose Towards Liquid Chlorine, Iodine and Iodine Monochloride. Ernst Beutel and Arthur Kutzelnigg. Monatsh. 66:249-254 (1935); C. A. 30:4665.—Cellulose is not dissolved in liquid chlorine at up to 149°, nor by liquid at 150°; each has, however, apparently a chemical action on cellulose. Iodine chloride at 90° dissolves cellulose, forming a product soluble in ethyl alcohol.—C. J. W.

Modifications of Cellulose. S. M. Neale. Am. Dyestuff Reptr. 25:287-289 (1936).—A review.—A. P.-C.

Micellar Structure as Related to Cellulose. James W. McBain and Daniel A. Scott. Ind. Eng. Chem. 28:470-473 (April, 1936).—Micellar structure and association are discussed particularly in connection with viscosity with mere change in temperature or with change in solvent or treatment of nitrocotton and from the occasional enhancement of the viscosity brought about by simple physical means, it is concluded that cellulose derivatives are association colloids like soaps and that association and formation of micelles or more complicated structures appear to be an essential feature of cellulose and its derivatives. The extrapolation procedure of Staudinger for determining "molecular weights" from viscosity appears to be over-simplified and to include the effects of associative tendencies, and it therefore does not lead to a true measure of molecular weight.—A. P.-C.

What is Cotton? W. K. Farr and S. H. Eckerson. Textile World 86:74 (1936). — Microphotographs are given showing the progressive freeing of the cellulose from pectic binding substances in cotton fibers and its ultimate resolution into chains of spherical particles by treatment with hydrochloric acid and suitable staining agents (ruthenium red for pectic substances; sulphuric acid plus iodine for cellulose).—A. P.-C.

Oxidation of Ceellulose by Air in Presence of Alkali. R. Chambrand. Rusta 10:699-702, 775-779 (1935); 11:19-23 (1936).—An exposition of the present status of our knowledge of the problem and a review of published work, more particularly of the British Cotton Industry Research Association, comparing the results with those obtained in commercial practice. The article deals successively with the measurement of the degree of oxidation of cellulose, and with the influence of caustic soda concentration, temperature, presence of traces of metals, and preliminary swelling of the cellulose.—A. P.-C.

Pacific TAPPI Meets at Portland, Ore.

The Pacific Section of the Technical Association of the Pulp and Paper Industry held its annual meeting at the Multnomah Hotel, Portland, Ore., on November 6 and 7, 1936. William R. Barber of the Crown Willamette Paper Company, Camas, Wash., presided as chairman. Arrangements for the meeting were taken care of by W. C. Marshall of Heller & Merz Company and Ray Carey of the National Aniline and Chemical Company.

H. A. Des Marais led a discussion on "Dyestuff Problems in the Beater Room."

The Du Pont motion picture "The Wonder World of Chemistry" was exhibited. Those present attended a football game on Saturday and a dinner-dance in the evening.

Among the other papers presented were the following which will be printed in full in a future issue of the Paper Trade Journal: "A Rapid Method of Determining the Cuprammonium Viscosity of Pulp," by E. A. Ennavaara of the British Columbia Pulp and Paper Company, Port Alice, B. C.; "Laboratory Studies in Sulphite Waste Liquor," by H. K. Benson of the University of Washington, Seattle; and "The Use of Sodium Aluminate in Water Treatment," by Harold Fretz of the Olympic Forest Products Company, Port Angeles, Wash.

Election of Officers

The following officers were elected for the coming year: Chairman, Carl Fahlstrom, Longview Fibre Company, Longview, Wash.; Vice Chairman, George H. McGregor, Weyerhaeuser Timber Company, Pulp Division, Longview, Wash.; Secretary-Treasurer, Earl G. Thompson, Great Western Electrochemical Company, Seattle, Wash.; Executive Committeemen—W. R. Barber, Crown Willamette Paper Company, Cama, Wash., and Andreas Christensen, British Columbia Pulp and Paper Company, Vancouver, B. C.

It was decided to hold but one general meeting each year and to hold a number of local dinner meetings. A resolution of appreciation of the work of Myron W. Black of the Inland Empire Paper Company, Spokane, Wash., was adopted.

Those Who Attended

Among those present were the following:

Mr. and Mrs. Fred Alsop, Van Waters & Rogers, Portland, Ore.; John Ashby, Westminster Paper Company, New Westminster, B. C.; Mr. and Mrs. Ray Austin, Washington Pulp & Paper Companay, Port Angeles, Wash.; Geo. S. Backus, Oliver Filters Company, Portland; T. J. Bannon, Western Gear Works, Seattle; Mr. and Mrs. W. R. Barber, Crown Willamette Paper Company, Camas, Wash.; Dr. H. K. Benson, University of Washington, Seattle; Myron Black, Inland Empire Paper Company, Millwood, Wash.; Mr. and Mrs. Carl Braun, Hawley Pulp & Paper Company, Oregon City, Ore.; Mr. and Mrs. G. S. Brazeau, Weyerhaeuser Timber Company, Pulp Division, Everett; R. A. Brunner, Electric Steel Foundry Company, Portland; Martin Breuer, E. I. du Pont de Nemours, San Francisco; W. E. Buchanan, Appleton Wire Works, Appleton, Wis.; Mr. and Mrs. C. H. Belvin, Chromium Corporation of America, Portland.

Jack Cater, Hawley Pulp & Paper Company, Oregon City, Ore.; Mr. and Mrs. Roy Carey, National Aniline and Chemical Company, Portland; R. E. Chase, R. E. Chase & Company, Tacoma; W. W. Clark, Longview Fibre Company, Longview; N. Cohn, Leeds & Northrup, San Francisco; J. V. B. Cox, Hercules Powder Company, Portland; J. W. Cronin, Krebs Pigment Company, San Francisco; Prof. C. J. Dernbach, University of Portland, Portland; Mr. and Mrs. H. A. Des Marais, General Dyestuff Corporation, Portland; Mr. and Mrs. Geo. Douglas, Washington Pulp and Paper Company, Port Angeles, Wash.; R. E. Crain, St. Helens Pulp and Paper Company, St. Helens, Ore.; Mr. and Mrs. E. G. Drew, J. O. Ross Engineering Company, Portland; E. A. Ennvaara, British Columbia Pulp and Paper Company, Port Alice, B. C.

Mr. and Mrs. Carl Fahlstrom, Longview Fibre Company, Longview; J. P. V. Fagan, Puget Sound Pulp and Timber Company, Anacortes, Wash.; Jack Flynn, Hooker Electrochemical Company, Tacoma; Mr. and Mrs. J D. Fraser, Weyerhaeuser Timber Company, Everett; Dr. Leo Friedman, Oregon State College, Corvallis, Ore.; B. R. Gardner, Pennsylvania Salt Manufacturing Company, Tacoma, Wash.; W. R. Gibson, Shibley Company, Seattle, Wash.; Mr. and Mrs. Kenneth Hall, Improved Paper Machine Company, Portland, Ore.; R. N. Hammond, Weyerhaeuer Timber Company, Longview, Wash.; H. A. Hanff, Weyerhaeuser Timber Company, Longview, Wash.; Mr. and Mrs. J. E. Hassler, Coast Manufacturing Company, Portland, Ore.; A. H. Hooker, Jr., Hooker Electro-Chemical Company, Tacoma; Arnold Hegg, Grays Harbor Pulp and Paper Company, Hoquiam; Mr. and Mrs. W. S. Hodges, Appleton Wire Works, Portland.

Mr. and Mrs. W. A. Kelly, Waterbury Felt Company, Portland; Mr. and Mrs. W. N. Kelly, Weyerhaeuser Timber Company, Longview; Mr. and Mrs. E. E. Kertz, J. W. Bolton, Portland; J. O. Kjome, Scientific Supplies Company, Seattle; Dr. E. C. Lathrop, Crown Willamette Paper Company, Camas, Wash.; C. J. McAllister, Coast Manufacturing Company, Portland; Dr. G. H. McGregor, Weyerhaeuser Timber Company, Longview; Major W. C. McIndoe, Engineers Corps, Portland; Mr. and Mrs. D. K. MacBain, Weyerhaeuser Timber Company, Longview; W. C. Marshall, Heller & Merz, Portland; J. W. Martin, Schorn Paint Company, Seattle; A. M. Mears, Pacific Coast Supply Company, Portland; George Millard, Chemical Engineer Company, Seattle; T. E. Moffett, I. F. Lauks, Inc., Seattle, Wash.

Fred Nicholson, Stetson Ross Company, Portland; J W. Natwick, National Pulp and Paper Company, Port Townsend, Wash.; Mr. and Mrs. A. G. Natwick, Crown Willamette Paper Company, Camas, Wash.; Adolph Orup, Soundview Pulp Company, Everett, Wash.; Forest Odom, Hawley Pulp and Paper Company, Oregon City, Ore.; Mr. and Mrs. R. S. Painter, U. S. Gypsum Company, Portland; Frederick M. Pape, Wilson George Meyer Company, Seattle; Mr. and Mrs. J. W. Peckham, Bristol Company, Seattle; Mrs. R. T. Petrie, Bagley & Sewall, Portland; Mr. and Mrs. A. S. Quinn, Stebbins Engineer and Manufacturing Company, Seattle; Mr. and Mrs. Ralph Reid, Spaulding Pulp and Paper Company, Newberg, Ore.; Mr. and Mrs. H. H. Richmond, Electric Steel Foundry Company, Portland; J. W. Robinson, Leeds & Northrup, San Francisco.

Otto Sangder, Grays Harbor Pulp and Paper Company, Hoquiam, Wash.; Joseph Scheuerman, Cameron Machine Company, Brooklyn, N. Y.; Harlan Scott, *Pacific Pulp and Paper Industry*, Seattle; L. R. Sheldahl, Eagle Metal Company, Seattle; Mr. and Mrs. Brian Shera, Pennsylvania Salt Manufacturing Company, Tacoma; Don Shirley, Link-Belt Company, Portland; Mr. and Mrs. A. R. Sievers, Longview Fibre Company, Longview; R. W. Simeral, Firtex Insulating Board, St. Helens, Ore.; Ray

Smythe, Smythe & Company, Portland; Mr. and Mrs. H. A. Stephans, Allis Chalmers Company, Portland.

A. Ward Tedrow, Hawley Pulp and Paper Company, Oregon City, Ore.; V. L. Tipka, Crown Willamette Paper Company, Camas, Wash.; Mr. and Mrs. Earl G. Thompson, Great Western Electrochemical Company, Seattle; H. A. Vernet, Staley Manufacturing Company, Seattle; Mr. and Mrs. R. D. Waddell, Crown Willamette Paper Company, Camas, Wash.; J. W. Watwick, National Paper Products Company, Port Townsend, Wash.; Mr. and Mrs. L. H. Wear, Taylor Instrument Company, Seattle; R. S. Wertheimer, Longview Fibre Company, Longview, Wash.; W. H. Williamson, Shuler & Benninghofen, Portland; Mr. and Mrs. J. B. Wilt, Spaulding Pulp and Paper Company, Newberg, Ore.; A. D. Wood, Shaffer Pulp Company, Tacoma; Mr. and Mrs. Fred Weleber, Hawley Pulp and Paper Company, Oregon City, Ore.; Mr. and Mrs. E. P. Wood, Weyerhaeuser Timber Company, Longview.

Government Bids and Awards

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., Nov. 18, 1936—The Government Printing Office has received the following bids for 3,000 pounds of No. 1, gummed kraft paper in 24 inch rolls: United Supply Company, 7 cents per pound; Mathers-Lamm Paper Company, 7.35 cents; Whitaker Paper Company, 8.24 cents; Walker-Goulard-Plehn Company, 7.75 cents; Reese & Reese, Inc., 9.1 cents; Resolute Paper Products Corporation, 7 cents; Virginia Paper Company, 8.25 cents; J. R. Howarth Paper Company, 8.14 cents; and Enterprise Paper Company, 7.14 cents.

For 3,400 sheets of 20 x 25 inch blue gummed paper: Whitaker Paper Company, $9.60 per M.; Mathers-Lamm Paper Company, $10.50; R. P. Andrews Paper Company, $9.85; Virginia Paper Company, $9.60; and J. R. Howarth Paper Company, $11.12.

For 80,000 pounds of supercalendered book paper in 34 inch rolls: Paper Corporation of U. S., at 4.73 cents per pound; R. P. Andrews Paper Company, 4.75 cents; and Jessup & Moore Paper Company, 4.75 cents.

For 2,110 pounds of 24 x 38 inch white dull coated paper: R. P. Andrews Paper Company, at 10 cents per pound; and Stanford Paper Company, 8.148 cents and 10.9 cents.

In connection with the administration of the Walsh-Healey government contract act, administered by the Labor Department, that department has announced the following government awards for paper in excess of $10,000, which means that these contractors come under the Act.

Contract from the Government Printing Office for white ledger paper to Reese & Reese, Inc., at $20,960; to the R. P. Andrews Paper Company, $20,960; and to Barton, Duer & Koch Paper Company, $20,400.

For 136,400 pounds of white ledger paper: R. P. Andrews Paper Company, 11.33 cents per pound; Barton, Duer & Koch Paper Company, 10.13 cents; Mathers-Lamm Paper Company, 12.13 cents; Stanford Paper Company, $10.98 cents; Reese & Reese, Inc., 10.98 cents; Whiting Paper Company, 11.5 cents; and Paper Corporation of the U. S., 12.25 cents.

For 8,400 pounds (30,000 sheets) of 50% rag white index: J. R. Howarth Paper Company, 15.081 cents; Whiting Paper Company, 14 cents; Walker-Goulard-Plehn Company, Inc., 14.725 cents; Barton, Duer & Koch Paper Company, 12.74 cents; Mathers-Lamm Paper Company, 14.57 cents; R. P. Andrews Paper Company, 13.4 cents; and Reese & Reese, Inc., 15 cents.

Boston Paper Industry News

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., November 16, 1936—Commenting on the upward revision of wage scales in several New England industries, Winthrop L. Carter, president of the New England Council and head of the Nashua Gummed and Coated Paper Company, Nashua, N. H., said that "in a time of improving business activity such wage increases should serve to give added impetus to the upward trend of New England business."

Henry L. Goodman is distributing sample sheets of Pique Dulcote Duplex Paper, made by the Marvellum Company, Holyoke, Mass., in beautiful shades for greeting card purposes.

The Beveridge-Marvellum Company, South Hadley Falls, Mass., represented by Mr. Goodman, has produced a new line of pearl papers, called Wave Crystal.

John F. Blackman, vice-president of the D. F. Munroe Company and head of the twine department of that firm, left November 7 on a hunting trip to Maine, including Mount Katahdin. He expects to return this week.

Kenneth L. Moses, representative of the St. Regis Paper Company, has returned from a hunting trip to Northern New Hampshire.

Samuel Ginsburg, of Ginsburg Bros., Somerville, Mass., is convalescing at his home in Jamaica Plain after a severe attack of pneumonia.

T. Stewart Foster, president of the Foster Paper Company, Inc., Utica, N. Y., Frank E. Taylor, vice-president and general manager of the Advertisers Paper Mills, Holyoke, Mass., and J. F. Ryan, of the Mastercraft Paper Company, New York City, called on the trade last week. Mr. Taylor was in town a number of days.

W. G. MacNaughton Returns To Old Post

Secretary Royal S. Kellogg announces that W. G. MacNaughton has returned to the News Print Service Bureau in the position of engineer, which he held during 1928 and 1929.

Mr. MacNaughton's experience covers 28 years in the North American paper industry in both technical and managerial capacities. A chemical engineering graduate of McGill University in 1904, he was one of the organizers and first vice-president of the Technical Association of the Pulp and Paper Industry in 1915 and Secretary of that organization for six years beginning in the fall of 1921.

After a period with the News Print Service Bureau he was in the head office of the International Paper Company for some time, while for the past four years he has been connected with the Experimental Pulp and Paper Laboratory, at Savannah, Ga.

Correction

In the issue of the PAPER TRADE JOURNAL of October 8, it was stated that during the month of August, 1936, the Reconstruction Finance Corporation had authorized a loan of $160,000 to the Bryant Paper Company, Kalamazoo, Mich. This statement is incorrect. The facts are as follows:

The Bryant Paper Company obtained a loan from the Reconstruction Finance Corporation two years ago in a total amount of $200,000, to be paid back in installments within five years. The company has promptly met the first two installments amounting to a little better than $60,000, so that the balance payable over the next three years is less than $140,000. The Bryant Paper Company did not apply for nor did it receive this year a loan for $160,000.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING NOVEMBER 14, 1936

CIGARETTE PAPER

Champagne Paper Corp., *Normandie,* Havre, 795 cs.; De Mauduit Paper Corp., *Normandie,* Havre, 1 cs.; Irving Trust Co., *Aquitania,* Southampton, 27 cs.

WALL PAPER

A. W. Fenton, *American Farmer,* London, 1 cs.; S. K. Lonegren, *Drottningholm,* Gothenburg, 26 bxs.

PAPER HANGINGS

W. H. S. Lloyd & Co., *American Farmer,* London, 18 bls., 1 cs.

WALL BOARD

Treetex Corp., *Drottningholm,* Gothenburg, 130 bdls., Johaneson Wales & Sparre, Inc., *Drottningholm,* Gothenburg, 250 bdls.

NEWSPRINT

———, *Bergensfjord,* Skien, 408 rolls; Jay Madden Corp., *Blankaholm,* Kotka, 291 rolls; H. Reeve Angel & Co. Inc., *Blankaholm,* Kotka, 443 rolls; H. G. Craig Co., *Donpaco,* Donnacona, 366 rolls.

PRINTING PAPER

A. Murphy & Co., *Normandie,* Havre, 1 cs.; H. Reeve Angel & Co., Inc., *Blankaholm,* Kotka, 21 bls.

WRAPPING PAPER

Guaranty Trust Co., *Drottningholm,* Gothenburg, 71 bls., 80 bdls., 3,744 rolls.

KRAFT PAPER

Parsons & Whittemore, Inc., *Drottningholm,* Gothenburg, 1,466 pkgs.

FILTER PAPER

H. Reeve Angel & Co. Inc., *Normandie,* Havre, 29 cs.; H. Reeve Angel & Co. Inc., *American Farmer,* London, 10 cs.; A. Giese & Son, *Aquitania,* Southampton, 42 bls.; E. H. Sergent & Co., *Drottningholm,* Gothenburg, 13 cs.

DRAWING PAPER

H. Reeve Angel & Co. Inc., *American Farmer,* London, 6 cs.

MARBLE PAPER

Borden Riley Paper Co., *Pennland,* Antwerp, 1 cs.; Tamm & Co., *Pennland,* Antwerp, 2 cs.

SURFACE COATED PAPER

———, *Pennland,* Antwerp, 3 cs.

BASIC PAPER

———, *Pennland,* Antwerp, 12 cs.

PHOTO PAPER

J. J. Gavin, *Aquitania,* Southampton, 7 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., *Scythia,* Liverpool, 8 cs. (duplex).

TISSUE PAPER

Van Oppen & Co., *Excalibur,* Genoa, 31 cs.; ———, *Rex,* Genoa, 45 cs.; B. F. Drakenfeld & Co., *Scythia,* Liverpool, 2 cs.

MUSIC PAPER

———, *Normandie,* Havre, 4 cs.

PAPER BOARD

J. P. Heffernan Paper Co., *Black Tern,* Antwerp, 13 cs.

GREASEPROOF PAPER

Parsons & Whittemore, Inc., *Drottningholm,* Gothenburg, 110 rolls.

BLOTTING PAPER

J. & H. Berge, *Scythia,* Liverpool, 2 cs.

PAINT PAPER

The Lafayette Co., *Scythia,* Liverpool, 2 cs.

MISCELLANEOUS PAPER

Jay Madden Corp., *Scanstates,* Helsingfors, 13 bbls.; ———, *Bordeaux Maru,* Kobe, 10 cs.; Japan Paper Co., *Excalibur,* Genoa, 8 cs.; R. J. Saunders, Inc., *Aquitania,* Southampton, 6 cs.; The Borregaard Co. Inc., *Drottningholm,* Gothenburg, 879 rolls, 39 bls., 81 cs.; F. L. Kramer Co., *Drottningholm,* Gothenburg, 231 bls.

RAGS, BAGGINGS, ETC.

———, *Narutu Maru,* Kobe, 825 bls. cotton waste; ———, *Cameronia,* Glasgow, 79 bls. bagging; Castle & Overton, Inc., *Argentino,* Beunos Ayres, 165 bls. bagging; Castle & Overton, Inc., *Argentino,* Buenos Ayres, 368 bls. dark cottons; D. Benedetto, Inc., *Cypria,* Marseilles 124 bls. rags; D. Galloway, Inc., *Cypria,* Marseilles, 27 bls. thread waste; E. J. Keller Co. Inc., *Pennland,* ———, 120 bls. bagging; D. M. Hicks, Inc., *Pennland,* Antwerp, 114 bls. flax pulp; ———, *Bordeaux Maru,* Kobe, 900 bls. cotton waste; Banco Coml. Italiane Trust Co., *Bordeaux Maru,* Kobe, 50 bls. rags; ———, *Bordeaux Maru,* 30 bls. rags; C. Tennant Sons Co., *Bordeaux Maru,* Kobe, 50 bls. cotton waste; O. Smith & Sons, Co., *Bordeaux Maru,* Shanghai, 350 bls. cotton waste; J. J. Ryan & Son Inc., *Bordeaux Maru,* Shanghai, 100 bls. cotton waste; Michigan Felt Co., *Bordeaux Maru,* Shanghai, 150 bls. cotton waste; C. Tennant Sons Co., *Bordeaux Maru,* Shanghai, 100 bls. cotton waste; Royal Manufacturing Co., *Bordeaux Maru,* Shanghai, 50 bls. cotton waste; Banco Coml. Italiane Trust Co., *Excalibur,* Alexandria, 96 bls. bagging, 93 bls. rags; R. Blank, *Excalibur,* Alexandria, 37 bls. old cottons; Castle & Overton, Inc., *Excalibur,* Alexandria, 72 bls. rags; E. J. Keller Co. Inc., *Excalibur,* ———, 73 bls. rags; E. J. Keller Co. Inc., *Black Tern,* ———, 807 bls. paper stock; Castle & Overton Ins., *Black Tern,* Antwerp, 83 bls. bagging; W. Steck & Co., *Black Tern,* Antwerp, 240 bls. bagging; American Express Co., *Black Tern,* Antwerp, 194 bls. rags; Irving Trust Co., *Black Tern,* Antwerp, 174 bls. rags; A. W. Fenton, Inc., *American Farmer,* London, 221 bls. paper stock; ———, *American Farmer,* London, 15 bls. paper stock; J. Cohen & Son Co. Inc., *American Farmer,* London, 32 bls. rags; E. J. Keller Co. Inc., *Silverbeech,* ———, 124 bls. new cuttings; J. Eisenberg Co. Inc.,

Drottningholm, Gothenburg, 8 bls. rags; W. Steck & Co., *Black Condor,* Rotterdam, 104 bls. bagging; F. Stern, *Black Condor,* Rotterdam, 179 bls. rags; Irving Trust Co., *Black Condor,* Rotterdam, 48 bls. rags; D. Benedetto, Inc., *Black Condor,* Rotterdam, 392 bls. rags; American Express Co., *Black Condor,* Rotterdam, 24 bls. rags; E. J. Keller Co. Inc., *Black Condor,* ———, 61 bls. bagging; ———, *Scythia,* Liverpool, 59 bls. rags; E. J. Keller Co. Inc., *Executive,* ———, 126 bls. paper stock; E. J. Keller Co. Inc., *Schodack,* ———, 251 bls. paper stock; E. J. Keller Co. Inc., *Examelia,* ———, 132 bls. paper stock.

OLD ROPE

Chase National Bank, *Cameronia,* Glasgow, 66 coils; Banco Coml. Italiane Trust Co., *American Farmer,* London, 50 coils.

WOOD PULP

Lagerloef Trading Co., *Scanstates,* Wiborg, 312 bls. sulphate, 52 tons; Lagerloef Trading Co., *Scanstates,* Wiborg, 1,390 bls. sulphite, 261 tons; Lagerloef Trading Co., *Scanstates,* Helsingfors, 500 bls. sulphite, 100 tons; E. M. Sergeant Pulp & Chemical Co., *Bergensfjord,* Oslo, 300 bls. chemical pulp; M. Sone, *Bergensfjord,* Oslo, 2,194 bls. mechanical pulp; J. Andersen & Co., *Bergensfjord,* Oslo, 1,835 bls. sulphite; Perkins Goodwin & Co., *Bergensfjord,* Drammen, 500 bls. sulphite; The Borregaard Co. Inc., *Bergensfjord,* Sarpsborg, 672 bls. sulphate; Bulkley Dunton & Co., *Drottningholm,* ———, 200 bls. wood pulp; Gottesman & Co. Inc., *Drottningholm,* Gothenburg, 1,274 bls. sulphate; ———, *Black Condor,* Rotterdam, 815 bls. wood pulp, 163 tons; Lagerloef Trading Co., *Blankaholm,* Helsingfors, 910 bls. mechanical pulp; Lagerloef Trading Co., *Blankaholm,* Wiborg, 1,521 bls. sulphite; Castle & Overton, Inc., *Blankaholm,* Wiborg, 2,399 bls. wood pulp; Lagerloef Trading Co., *Blankaholm,* Kotka, 300 bls. sulphate; Bulkley Dunton & Co., *Blankaholm,* ———, 200 bls. wood pulp; J. Andersen & Co., *Blankaholm,* Gothenburg, 250 bls. sulphite; Bankers Trust Co., *Blankaholm,* Gothenburg, 279 bls. sulphite; Johaneson Wales & Sparre, Inc., *Blankaholm,* Gothenburg, 100 bls. sulphate; Price & Pierce, Ltd., *Blankaholm,* Gothenburg, 250 bls. unbleached sulphite.

WOOD PULP BOARDS

H. Fuchs & Son, *Drottningholm,* Gothenburg, 42 crates; Jay Madden Corp., *Blankaholm,* Kotka, 307 rolls.

NEWARK IMPORTS

WEEK ENDING NOVEMBER 14, 1936

H. G. Craig Co., *Newscarrier,* Donacona, 318 rolls newsprint.

ALBANY IMPORTS

WEEK ENDING NOVEMBER 14, 1936

Bulkley Dunton & Co., *Svanhild,* ———, 5,000 bls. sulphite, 1,015 tons; Perkins Goodwin & Co., *Svanhild,* Stugsund, 500 bls. sulphate, 101 tons; Perkins Goodwin & Co., *Svanhild,* Stugsund, 1,750 bls. sulphite, 355 tons; Perkins Goodwin & Co., *Svanhild,* Sundsvall, 1,800 bls. sulphate, 300 tons; Johaneson Wales & Sparre, Inc., *Svanhild,* Sundsvall, 150 bls. sulphate, 25 tons; Johaneson Wales & Sparre, Inc., *Svanhild,* Sundsvall, 5,375 bls. sulphite, 1,075 tons; Price & Pierce, Ltd., *Belos,* ———, 900 bls. bleached sulphite.

PORTLAND IMPORTS

WEEK ENDING NOVEMBER 14, 1936

Bulkley Dunton & Co., *Blankaholm,* ———, 4,650 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING NOVEMBER 14, 1936

International Purchasing Co., *Excalibur,* Genoa, 188 coils old rope; ———, *Excalibur,* Alexandria, 5 bls. rags; E. J. Keller Co. Inc., *Excalibur,* ———, 70 bls. rags; Bank of Montreal, *Cornerbrook,* Cornerbrook, 2,832 rolls newsprint.

WILMINGTON IMPORTS

WEEK ENDING NOVEMBER 14, 1936

Price & Pierce, Ltd., *Bockenheim,* ———, 6,600 bls. unbleached sulphite.

PHILADELPHIA IMPORTS

WEEK ENDING NOVEMBER 14, 1936

Moore & Munger, *Gloucester City,* Fowey, 767 tons, 1 cwt. china clay; English China Clays Sales Co., *Gloucester City,* Fowey, 599 tons, 7 cwt. china clay; Lagerloef Trading Co., *Scanstates,* Wiborg, 1,521 bls. sulphite, 275 tons; J. W. Hampton, Jr. Co., *Scanstates,* Wiborg, 475 rolls newsprint; Wilkinson Bros. Co. Inc., *Scanstates,* Wiborg, 70 rolls newsprint; Neidich Process Co., *Scanstates,* Helsingfors, 153 bbls. paper; J. Andersen & Co., *Scanstates,* Helsingfors, 600 bls. mechanical pulp, 100 tons; Lagerloef Trading Co., *Scanstates,* Helsingfors, 130 bls. mechanical pulp, 26 tons; Castle & Overton, Inc., *Argentino,* Buenos Ayres, 295 bls. paper stock; E. J. Keller Co. Inc., *Bordeaux Maru,* ———, 400 bls. rags; J. M. Hagy Waste Works, *Bordeaux Maru,* Kobe, 75 bls. rags; ———, *Bordeaux Maru,* Kobe, 155 bls. rags; ———, *Excalibur,* Alexandria, 116 bls. rags; E. J. Keller Co. Inc., *Black Condor,* ———, 75 bls. rags; ———, *Black Condor,* Rotterdam, 64 bls. rags; ———, *Black Condor,* Antwerp, 186 bls. rags; Castle & Overton, Inc., *Black Condor,* Antwerp, 68 bls. rags; E. J. Keller Co. Inc., *Black Osprey,* ———, 1,021 bls. rags.

BALTIMORE IMPORTS

WEEK ENDING NOVEMBER 14, 1936

Johaneson Wales & Sparre, Inc., *Scanstates,* Gdynia, 1,800 bls. wood pulp, 180 tons; ———, *Scanstates,* Gdynia, 1,612 bls. wood pulp, 300 tons; Lagerloef Trading Co., *Scanstates,* Wiborg, 2,456 bls. sulphate, 4,231 tons; Lagerloef Trading Co., *Scanstates,* Wiborg, 2,439 bls. sulphite, 412 tons; Gottesman & Co. Inc., *Scanstates,* Helsingfors, 250 bls. mechanical pulp, 50 tons; Johaneson Wales & Sparre, Inc., *Scanstates,* Helsingfors, 1,050 bls. mechanical pulp, 200 tons; S. Shapiro & Son, *Bordeaux Maru,* Kobe, 130 bls. rags; Castle & Overton, Inc., *Black Condor,* Rotterdam, 150 bls. wood pulp, 30 tons; Congoleum Nairn Co., *Black Condor,* Antwerp, 1,077 bls. rags; Congoleum Nairn Co., *Exmouth,* Marseilles, 257 bls. rags; Bulkley Dunton & Co., *Beemsterdyk,* ———, 232 bls. wood pulp; Price & Pierce, Ltd., *Bockenheim,* ———, 900 bls. unbleached sulphite; Price & Pierce, Ltd., *Bockenheim,* ———, 2,700 bls. unbleached kraft pulp.

SOUTH HAVEN IMPORTS

WEEK ENDING NOVEMBER 14, 1936

Price & Pierce, Ltd., *Solor,* ———, 2,300 bls. bleached sulphite.

NORFOLK IMPORTS

WEEK ENDING NOVEMBER 14, 1936

Irving Trust Co., *Black Condor,* Antwerp, 144 bls. bagging.

NEWPORT IMPORTS

WEEK ENDING NOVEMBER 14, 1936

Bulkley Dunton & Co., *Vigor,* ———, 4,864 bls. wood pulp; Bulkley Dunton & Co., *Bockenheim,* ———, 1,375 bls. wood pulp; Price & Pierce, Ltd., *Bockenheim,* ———, 7,880 bls. unbleached sulphite.

MONTREAL IMPORTS

WEEK ENDING NOVEMBER 14, 1936

Price & Pierce, Ltd., *Alssund,* ———, 4,800 bls. unbleached sulphite.

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Cass, West Virginia

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, November 18, 1936.

Sentiment in the local paper market continues optimistic. Demand for the various grades of paper is brisk. Sales forces of the leading paper organizations are optimistic regarding the future. Due to higher manufacturing and labor costs higher prices are anticipated shortly.

The outlook for the newsprint paper industry is brighter. Newspaper advertising lineage in October showed a big advance in the index of the *Editor and Publisher*, rising to 120.6, nearly six points higher than September's record, and the highest point yet reached in the recovery period.

Demand for the various grades of fine paper is persistent. Some manufacturers of book paper have announced increased prices on both coated and uncoated grades and others are expected to follow their example. Tissues are moving freely. The coarse paper market continues to display strength.

Mechanical Pulp

The ground wood pulp market is steady. Manufacturing operations in Canada, the United States and abroad are proceeding in sufficient volume to take care of current requirements. Stocks at the mills are not excessive and the statistical position of the industry continues sound.

Chemical Pulp

Firmness prevails in the chemical pulp market. Demand for the various foreign and domestic grades exceeds the supply, with the result that prices are inclined to rise. More interest is being displayed by the paper mills in bleachable grades of unbleached sulphite due to the scarcity of the bleached variety.

Old Rope and Bagging

The position of the old rope market is practically unchanged. Demand for domestic and imported old manila rope is fairly active. Small mixed rope is steady. The bagging market is exhibiting a strong undertone. Both scrap and gunny bagging are in better request.

Rags

Paper mill demand for new and old domestic rags is improving. New cotton cuttings are quite active and No. 1 white shirt cuttings, in particular, are in good request, both for home and export account. Roofing grades are steady to firm. No radical changes transpired in the imported rag market.

Waste Paper

The paper stock market is stronger than for some time past. Board mill demand for the lower grades is improving and prices of No. 1 mixed paper are higher. The better grades of waste paper are also firmer, especially white envelope cuttings and soft white shavings. Book stock is steady.

Twine

Steadiness prevails in the local twine market. The prevailing demand is heavy and the rush of orders should continue until the end of the year, at least. Quotations on both hard and soft fiber twines are well sustained despite keen competition for desirable orders.

Paper Demand Substantial In Boston

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., November 16, 1936—The wholesale paper business here continued favorable last week, with orders coming in in substantial volume for both fine and kraft lines. The complaint is still heard in the trade that there is difficulty in getting shipments from the mills, at least in some quarters, undoubtedly due to a plethora of orders. Box coverings were in good demand. As the holiday season approaches, there is a lively call for greeting card papers. Box board continued firm and fairly active.

Paper stock was generally strong, with an upward tendency, especially in waste paper. Several price revisions have been made in old papers. No. 1 books, heavy, rose to .70 @ .80 from .65 @ .75; No. 1 kraft to 1.25 to 1.20; mixed papers to .40 @ .45 from .35; print manila to .60 @ .70 from .55 to .60; old newspapers to .50 @ 55 from .45 @ .47½; overissue news to .50 @ .65 from .50; box board chips to .40 @ .45 from .30; and corrugated boxes to .50 @ .60 from .47½ @ .50, all f.o.b. Boston.

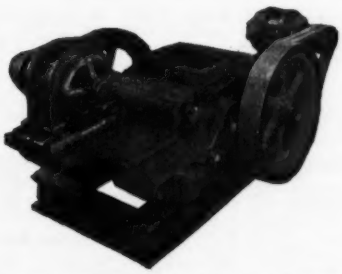
Bagging was very strong, with a number of advances in price. Domestic manila rope went up to 2.87½ from 2.75; foreign gunny No. 1 to 2.05 @ 2.15 from 1.90 @ 2.00; domestic gunny No. 1 to 1.90 @ 2.00 from 1.75 @ 1.80; and foreign scrap burlap to 2.00 @ 2.05 from 1.90 @ 2.00. The quotation on domestic scrap burlap has been marked up to 1.80 @ 1.90 from 1.75 @ 1.80, f.o.b. Boston. An offer of 1.82½ for domestic scrap burlap was reported, but there is very little to be had. Australian wool pouches advanced to 2.75 @ 2.80 from 2.50 @ 2.60, f.o.b. Boston.

The new domestic rag market was very firm, but no price changes were reported. Old domestic rags and foreign rags continued steady.

Detroit Paper Products Running Full

Retention of all its older business and the recent addition of several new national accounts for its plastic and insulation division will keep Detroit Paper Products Company production at capacity levels for several months to come, S. H. Franklin, president, states.

Commenting on the company's prospects during the fourth quarter, Mr. Franklin added that volume is at high levels and that 1936 net profit is expected to exceed any year in the company's history.



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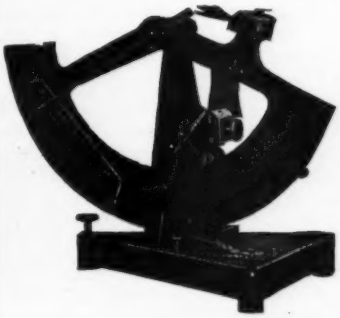

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PAPER MAKERS IMPORTING CO. INC. EASTON, PENNSYLVANIA

COATING FILLING

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Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, November 18, 1936.

BLANC FIXE—Conditions in the blanc fixe market are fairly satisfactory. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45 per ton, in bulk; while the powder is selling at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER—The position of the bleaching powder market is practically unchanged. Contract shipments are moving in good volume. Prices are steady to firm. Bleaching powder is quoted at from $2 to $2.25 per 100 pounds, in drums, at works.

CASEIN—The casein market is strong. Domestic standard ground is quoted at 17 and finely ground at 17½ cents; while French and Argentine standard ground are selling at 17 and finely ground at 17½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA—Steadiness prevails in the caustic soda market. The contract movement is normal. Solid caustic soda is still quoted at from $2.55 to $2.60; while the flake and ground are selling at from $2.95 to $3 per 100 pounds, in drums, at works.

CHINA CLAY—The china clay market continues to display strength. Contract shipments are moving freely. Imported china clay is quoted at from $13 to $21 per ton, ship side; while domestic paper making clay is selling at from $6.50 to $12 per ton, ship side.

CHLORINE—Paper mill demand for chlorine is persistent. The contract movement is well up to average. Prices are holding to schedule, without difficulty. Chlorine is quoted at from $2.15 to $2.25 per 100 pounds, in car lots, at works.

ROSIN—The rosin market continues firm. Paper making gum rosin is quoted at $7.22½ and wood rosin at $7.10 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at $3.42 per 100 pounds, in tank cars, at works.

SALT CAKE—Demand for salt cake is active. Shipments against contract are regular. Salt cake is quoted at from $12 to $13; chrome salt cake at from $11 to $12 per ton, at works; while imported salt cake is selling at from $12 to $13 per ton, ship side.

SODA ASH—The soda ash market is exhibiting a strong undertone. Prices for the coming year will be announced shortly. Quotations on soda ash, in car lots, at works, per 100 pounds, are now as follows: in bulk, $1.05; in bags, $1.20; and in barrels, $1.50.

STARCH—Trading in the starch market is moderately active. The contract movement is seasonal. Prices remain unchanged. Special paper making starch is quoted at $4 per 100 pounds, in bags; and at $4.27 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA—Business in the sulphate of alumina market is brisk. The contract movement is fairly heavy. Commercial grades are quoted at from $1.35 to $1.60; while iron free is selling at from $2 to $2.25 per 100 pounds, in bags, at works.

SULPHUR—The sulphur market is steady. Yearly contracts are quoted at $18 per long ton, on orders of 1,000 tons, or over, and $20 on smaller quantities. On spot and near by car loads, the quotation is $21 per ton. All quotations are in car lots, at works.

TALC—No radical changes transpired in the talc market during the past week. Prices are holding to schedule. Domestic talc is quoted at from $16 to $18 per ton, at eastern mines; while imported talc is selling at from $23 to $30 per ton, on dock.

Market Quotations

Paper

Rag Content Bond & Ledgers—Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers—Delivered Zone 1

	Bonds	Ledgers
No. 1 Sulphite	7.50 @ 8.50	
No. 2 Sulphite	6.50 @ 7.50	
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

Book, B Grade, Cased	
S. & S. C.	5.85 @ 6.60
S. & S. C. Litho.	6.10 @ 6.85
M. F.	5.60 @ 6.35
Coated and Enamel	6.80 @ 7.65
Coated Litho	6.80 @ 7.65
Tissues—Per Ream	
White No. 1	.82½ @ —
White No. 1 M. G.	.77½ @ —
White No. 1½	.62½ @ —
White No. 2	.60 @ —
Anti-Tarnish M. G.	.67½ @ —
Colored	.80 @ —
Kraft	.67½ @ —
Manila	.60 @ —
Unbleached Toilet	2.60 @ 3.30
Bleached Toilet	3.94 @ 5.26
Paper Towels—	
Unbleached	2.10 @ 3.35
Bleached	3.30 @ 3.70
Manila—	
No. 1 Jute	9.00 @ 9.25
No. 2 Jute	7.75 @ 8.50
No. 1 Wood	4.00 @ 5.25
No. 2 Wood	3.50 @ 4.00
Fibre Papers—	
No. 1 Fibre	4.25 @ 5.50
No. 2 Fibre	4.00 @ 4.75

(Delivered New York)

News, per ton—	
Roll, contract	41.00 @ —
Sheets	46.00 @ —
Kraft—	
No. 1 Northern	4.25 @ 4.75
Standard	4.00 @ 4.12½
Southern	3.87½ @ —
Glazed	4.37½ @ —
Striped	4.62½ @ —
Boards, per ton—	
News	37.50 @40.00
Chip	35.00 @37.50
Sgl. Mla. Ll. Chip.	50.00 @52.50
Jute Lined Chip	50.00 @52.50
Kraft Liners	65.00 @67.50
White Pat. Coated	60.00 @62.50
Binders Boards	67.00 @75.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—	
Moist	25.00 @26.00
Dry	25.00 @26.00
(Delivered)	
No. 1 Domestic and Canadian	28.00 @29.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—	
Division 1	2.70 @ 3.30
Division 2	2.65 @ 2.75
Division 3	2.60 @ 2.70
Prime Qualities—	
Class 1 All Prime Easy Bleaching	2.20 @ 2.25
Other than Easy Bleaching—	
Class 2 Higher than Standard	2.15 @ 2.20
Class 3 Standard	2.05 @ 2.15
Class 4 Lower than Standard	2.00 @ 2.05

(On Dock, Atlantic Ports)

Kraft Bleached	3.00 @ 3.25
Kraft Light & Strong	2.20 @ 2.30
Kraft No. 1	2.10 @ 2.20
Kraft No. 2	1.95 @ 2.05
(F. o. b. Pulp Mill)	
Kraft Domestic	1.85 @ 2.15
(Delivered)	
Soda Bleached	2.60 @ —

* Add 60 Cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—	
New White, No. 1	7.75 @ 8.00
Silesias No. 1	6.25 @ 6.50
New Unbleached	8.25 @ 8.50
New Soft Blacks	3.75 @ 4.00
Blue Overall	6.75 @ 7.00
Fancy	3.00 @ 3.25
Washables	2.25 @ 2.50
Mixed Khaki Cuttings	3.50 @ 3.75
O. D. Khaki Cuttings	4.25 @ 4.50

Old Rags

White, No. 1—	
Repacked	3.25 @ 3.50
Miscellaneous	2.75 @ 3.00
White, No. 2—	
Repacked	2.25 @ 2.50
Miscellaneous	1.75 @ 2.00
Thirds and Blues—	
Repacked	2.00 @ 2.25
Miscellaneous	1.90 @ 2.00
Roofing Rags—	
No. 1	Nominal
No. 2	1.60 @ 1.65
No. 3 (bagging)	1.50 @ 1.55
No. 4	1.50 @ 1.60
No. 5A	1.40 @ 1.50

Foreign Rags

New Rags

New Dark Cuttings	2.25 @ 2.50
New Mixed Cuttings	2.00 @ 2.25
New Light Silesias	5.50 @ 5.75
Light Flannelettes	5.50 @ 5.75
New White Cuttings	7.00 @ 7.50
New Light Oxfords	4.00 @ 4.50
New Light Prints	3.00 @ 3.25

Old Rags

No. 1 White Linens	7.50 @ 8.00
No. 2 White Linens	6.50 @ 7.00
No. 3 White Linens	4.50 @ 5.00
No. 4 White Linens	2.25 @ 2.50
No. 1 White Cotton	4.25 @ 4.75
No. 2 White Cotton	3.25 @ 3.75
No. 3 White Cotton	2.50 @ 2.75
No. 4 White Cotton	1.90 @ 2.15
Extra Light Prints	2.00 @ 2.25
Ord. Light Prints	1.75 @ 1.85
Med. Light Prints	1.55 @ 1.65
Dutch Blue Cottons	2.25 @ 2.50
French Blue Linens	3.50 @ 4.00
German Blue Linens	2.50 @ 2.75
German Blue Cottons	2.00 @ 2.25
Checks and Blues	2.00 @ 2.25
Linsey Garments	2.15 @ 2.25
Dark Cottons	1.90 @ 2.10
Old Shopperies	1.75 @ 2.00
New Shopperies	1.75 @ 2.00
French Blues	2.25 @ 2.50

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—	
Foreign	2.10 @ 2.15
Domestic	1.75 @ 1.85
Wool Tares, light	1.50 @ 1.75
Wool Tares, heavy	1.85 @ 2.05
Bright Bagging	1.70 @ 1.75
Manila Rope—	
Foreign	2.75 @ 3.00
Domestic	2.75 @ 3.00
Jute Strings	2.00 @ 2.25
Sisal Strings	2.00 @ 2.10
Mixed Strings	.80 @ 1.00

Old Waste Papers

(F. o. b. New York)

Shavings—	
White Envelope Cuttings	2.60 @ 2.70
Ordinary Hard White No. 1	2.25 @ 2.35
Hard White No. 2	2.10 @ 2.20
Soft White No. 1	2.00 @ 2.10
Blanks—	
Stitchless	.80 @ .90
Over issue Mag.	.80 @ .90
Solid Flat Book	.75 @ .80
Crumpled No. 1	.50 @ .55
Ledger Stock	.95 @ 1.00
New B. B. Chips	.30 @ .35
Manilas—	
New Env. Cut	1.75 @ 1.85
New Cuttings	1.35 @ 1.45
Old Kraft Machine—	
Compressed bales	1.15 @ 1.30
News—	
No. 1 White News	1.15 @ 1.25
Strictly Overissue	.60 @ .70
Strictly Folded	.50 @ .55
No. 1 Mixed Paper	.42½ @ .47½

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Twines

(F. o. b. Mill)

(Soft Fibre)

Coarse Polished—			
India	.13¾	@	.16¾
Belg. White Hemp	.14¾	@	.18¾
India Compress	.14¾	@	.14¾
Fine Polished—			
Fine India	.20	@	.22
Unpolished—			
Box	.09¾	@	.10¾
Paper Makers	.09½	@	.11¾
Tube Rope	.10½	@	.13¾
Wall Paper	.11½	@	.12¾
Wrapping	.15½	@	.21
Soft Fiber Rope	.12¾	@	.13¾

(Hard Fibre)

Bond	.12	@	.20½
Anchor	.11½	@	.13
Manila	.21	@	.28

CHICAGO

Paper

(F. o. b. Mill)

Rag Bond	.12	@	.40
Water Marked Sulphite Bond	.06¾	@	.11
Sulphite Bond	.05½	@	.07¾
Superfine Writing	.18	@	.24
No. 1 M. F. Book	.06½	@	.07¾
No. 2 M. F. Book	.05¾	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07	@	.12
Coated Label	.07	@	.08½
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¾	@	.03¾
No. 1 Kraft	4.75	@	5.00
Southern Kraft	3.88	@	4.25
No. 2 Kraft	3.88	@	4.25
Wood Tag Boards	.04¼	@	.06¾
Sulphite Screenings	.03	@	.03¾
Manila Tissue	.05¾	@	.07
White Tissue	.07	@	.09

(Delivered Central Territory)

News, per ton—			
Rolls, contract	42.00	@	—
Sheets, open	47.00	@	—
Boards, per ton—			
Plain Chip	46.50	@	—
Solid News	50.00	@	—
Manila Lined Chip	55.00	@	—
Patent Coated	65.00	@	—
Container Lined—			
85 Test, per 1000 sq. ft.			1.70
100 Test, per 1000 sq. ft.			1.85

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope Cuttings	1.70	@	2.00
No. 1 Hard White	1.40	@	1.65
No. 1 Soft White	1.25	@	1.50
Ledger & Writings	.60	@	.70
Solid Books	.50	@	.60
Blanks	1.00	@	1.05
Krafts	.80	@	.90
New Kraft Cuts	1.20	@	1.30
Manila Env. Cuts	1.25	@	1.30
Ex. No. 1 Manila	.90	@	1.00
Print Manila	.40	@	.50
Overissue News	.40	@	.45
Old Newspapers—			
No. 1 Folded News	.42½	@	.45
No. 1 Mixed Paper	.25	@	.30
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

Rag Content Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
No. 1 Sulphite	7.75	8.75
No. 2 Sulphite	6.75	7.75
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

F.o.b. Mill

Book, M. F.	5.00	@	—
Book, S. S. & C.	5.25	@	—
Book, Coated	6.15	@	—
Coated Lithograph	6.15	@	—
No. 1 Jute Manila	10.50	@	—
Manila Sul., No. 1	6.75	@	—
Manila No. 2	4.25	@	—
No. 1 Kraft	6.00	@	—
Southern Kraft	5.00	@	—
News Print Rolls	40.00	@	—
Straw Board	40.00	@	45.00
News Board	40.00	@	—
Chip Board	37.50	@	—
Wood Pulp Board	70.00	@	85.00
Binder Boards—			
No. 1, per ton	75.00	@	80.00
No. 2, per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94

Domestic Rags (New)

(Price to Mill. f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.08	@	.08½
New White, No. 2	.04½	@	.05
Light Silesias	.05½	@	—
Silesias, No. 1	.04½	@	.05
Black Silesias, soft	.03½	@	.04
New Unbleached	.06	@	—
Washable, No. 1	.02	@	.02½
Blue Overall	.07	@	.07½
Cottons—According to grades—			
Washable, No. 2	.02½	@	.04½
New Blue	.02	@	.02½
Fancy	.03	@	—
New Black Soft	.04	@	.04½
New Light Seconds	.03½	@	.04
New Dark Seconds	2.00	@	2.25
Khaki Cuttings—			
No. 1 O. D.	.04	@	.04½
No. 2 Mixed	.03½	@	.04
Corduroy	.02	@	.02¼
New Canvas	.04	@	.04½
New Black Mixed	.02	@	.02¼

Domestic Rags (Old)

White No. 1—			
Repacked	4.00	@	4.50
Miscellaneous	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	2.00	@	2.25
Repacked	2.50	@	2.75
Black Stockings (Export)	4.50	@	5.00
Roofing Stock—			
Foreign No. 1	2.20	@	2.25
Domestic No. 1	1.50	@	1.60
Domestic No. 2	1.40	@	1.50
Roofing bagging	1.10	@	1.20

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	2.00	@	—
Domestic	2.25	@	—
Manila Rope	2.75	@	—
Sisal Rope	2.25	@	2.35
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	2.25	@	2.50
No. 2	1.00	@	1.10
Wool Tares, heavy	3.25	@	3.50
Mixed Strings	1.00	@	1.10
No. 1 New Light Burlap	3.00	@	3.50
New Burlap Cuttings	2.50	@	2.75

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.30	@	2.40
No. 2 Hard White	2.10	@	2.20
No. 1 Soft White	1.80	@	1.85
No. 2 Soft White	1.40	@	1.45
No. 1 Mixed	—	@	.85
Solid Ledger Stock	1.50	@	1.60
Ledger Stock, white	1.15	@	1.20
Ledger Stock, colored	.85	@	.90
No. 1 Books, heavy	.65	@	.70
Manila Cuttings	1.80	@	1.90
Print Manila	.55	@	.60
Container Manila	.55	@	.60
Kraft Paper	1.10	@	1.20
No. 1 Mixed Paper	.45	@	.50
Straw Board Chip	.40	@	—
Binders Board Chip	.40	@	—
Corrugated Board	.60	@	.65
Overissue News	.60	@	—
Old Newspapers	.45	@	—

BOSTON

Paper

Rag Content Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
No. 1 Sulphite	7.50	8.50
No. 2 Sulphite	6.50	7.50
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

F.o.b. Mill

Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04¼	@	—
No. 2 Kraft	.04¼	@	—

(Delivered New England points)

Southern Kraft	.04	@	—
News Print Rolls	39.50	@	—
Straw Board, rolls	.009	@	35.00
Filled News Board	42.50	@	45.00
Chip Board	40.00	@	42.50
Single Manila Lined Chip	50.00	@	55.00
Single White, Patent Coated News Board (Bender)	60.00	@	65.00
Wood Pulp Board	70.00	@	75.00
Binder Boards (Standard Grade)	67.00	@	75.00

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.20	@	2.35
No. 1 Soft White	1.85	@	2.15
No. 2 Mixed	.75	@	.80
Solid Ledger Books	1.50	@	1.75
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.85	@	.90
No. 1 Books, heavy	.70	@	.80
No. 1 Books, light	.50	@	.60
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.50	@	1.60
Manila Env. Cuttings, extra quality	1.75	@	1.85
Old Newspapers	.47½	@	.50
No. 1 Old Manila	.60	@	.65
White Blank News	1.10	@	1.15
No. 1 Kraft	1.25	@	—
Mixed Papers	.40	@	.45
Print Manila	.60	@	.70
Container Manilas	.27½	@	—
Old Newspapers	.50	@	.55
Overissue News	.50	@	.65
Box Board Chips	.40	@	.45
Corrugated Boxes	.50	@	.60
Kraft corrugated boxes	.95	@	1.00
Screening Wrappers	.40	@	.45

Bagging

(F. o. b. Boston)

Manila Rope—			
Foreign	2.60	@	2.85
Domestic	2.87½	@	—
Transmission Rope	1.25	@	1.35
Jute Rope	2.12½	@	2.25
Jute Carpet Threads	1.65	@	1.75
Gunny No. 1—			
Foreign	2.05	@	2.15
Domestic	1.90	@	2.00
Bleachery Burlap	4.25	@	4.50
Scrap Burlap—			
Foreign	2.00	@	2.05
Domestic	1.80	@	1.90
Scrap Sisal	2.00	@	2.10
Scrap Sisal for Shredding	2.10	@	2.35
Wool Tares, heavy	1.90	@	2.00
New Burlap Cuttings	2.25	@	2.50
Australian Wool Pouches	2.75	@	2.80
Heavy Baling Bagging	2.00	@	2.50
Paper Mill Bagging	1.65	@	1.70
Bagging No. 2	1.10	@	1.25

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.03½	@	.03¾
New White No. 1	.07½	@	.08
New White No. 2	.04½	@	.05
Silesias No. 1	.06½	@	.06¾
New Black Silesias	.03½	@	.04¼
Soft Unbleached	.08	@	.08½
Blue Chevoit	.06½	@	.07
Fancy	.03	@	.03¼
Washable	.02	@	.0250
Cottons—According to grades—			
Blue Overalls	6.25	@	6.75
New Black, soft	.04	@	.04¾
Khaki Cuttings	.03¾	@	.04
O. D. Khaki	.03½	@	.04¼
Corduroy	.02¾	@	.03
New Canvas	—	@	—
B.V.D. Cuttings	.07¾	@	.08

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	—	@	2.75
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	1.90	@	2.00
Miscellaneous	2.00	@	2.25
Twos and Blues	1.75	@	2.00
Thirds and Blues—			
Repacked	1.37½	@	1.75
Miscellaneous	1.25	@	1.62½
Black Stockings	3.90	@	4.00
Roofing Stock—			
No. 1	1.75	@	1.80
No. 2	1.65	@	1.70
No. 3	1.30	@	1.35

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.85	@	2.00
New White Shirt Cuttings	6.50	@	6.75
Dutch Blues	2.25	@	2.50
New Checks & Blues	2.50	@	3.00
Old Fustians	2.05	@	2.25
Old Linsey Garments	2.00	@	2.37½
New Silesias	5.75	@	6.00

TORONTO

Paper

Bond—Delivered—			
No. 5 White	.10¾	@	—
No. 6 White	.10	@	—
No. 5 Tints	.11¾	@	—
No. 6 Tints	.10½	@	—
No. 5 Golden Rod	.12¾	@	—
No. 6 Golden Rod	.12	@	—
Ledgers—			
Ledgers, No. 1	.34½	@	—
Ledgers, No. 2	.25½	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F.	6.50	@	6.75
No. 2 M. F.	6.25	@	6.50
No. 3 M. F.	5.00	@	5.35
No. 1 S. C.	7.00	@	7.50
No. 2 S. C.	6.50	@	7.00
No. 3 S. C.	5.50	@	6.00
No. 1 Coated and Litho	12.00	@	—
No. 2 Coated and Litho	10.50	@	—
No. 3 Coated and Litho	9.50	@	—
Coated tinted	13.00	@	—
Wrapping—delivered—			
Rag Brown	4.75	@	—
White Wrap	3.50	@	—
"B" Manila	4.80	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft M. F.	5.90	@	—
Kraft, No. 2	5.40	@	—

(F. o. b. Cars Toronto)

News, per ton—			
Rolls (contract)	Nominal		
Sheets	Nominal		

Pulp

Ground wood	27.00	@	—
Unbleached Sulphite	42.00	@	—
Book (Class 1)	58.00	@	—
Writing (Class 2)	59.00	@	—
Select (Class 3)	60.00	@	—

Old Waste Paper

(In carload lots. f. o. b. Toronto)

Shavings—			
White Env. Cut	2.00	@	2.25
Soft White	1.60	@	1.90
White Blk. News	1.25	@	1.40
Book and Ledger—			
Flat Magazine and Book Stock (old)	.80	@	.90
Light and Crumpled Book Stock	.70	@	.80
Ledgers and Writings	.90	@	1.00
Manilas—			
New Manila Cut	1.25	@	1.40
Printed Manilas	.50	@	—
Kraft	1.00	@	1.60
News and Scrap—			
Strictly Overissue	.55	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags

(Price to mills. f. o. b. Toronto)

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PAPER TRADE JOURNAL

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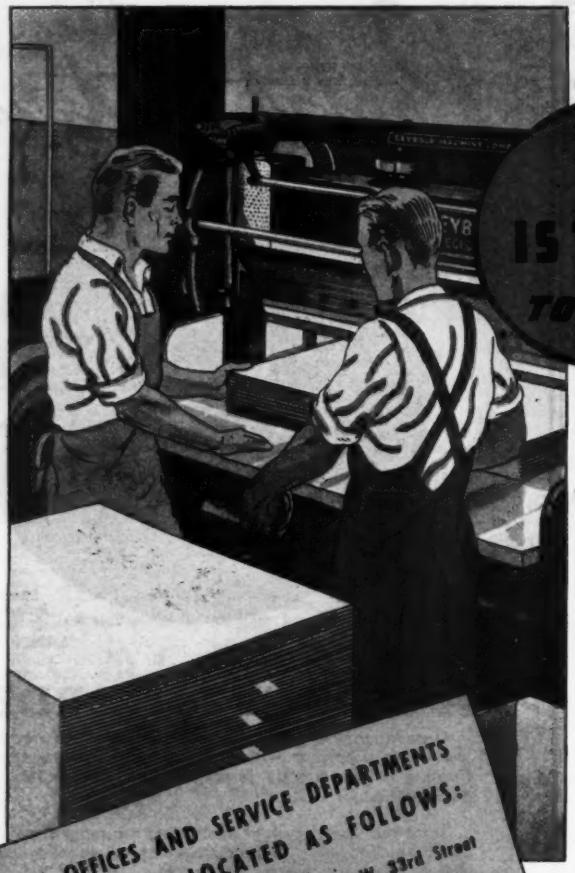

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